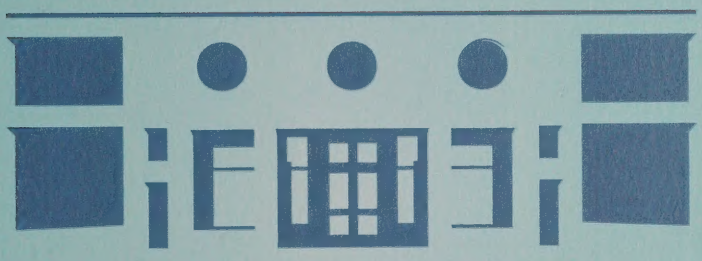
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FUNDING THE FUTURE OF

Science



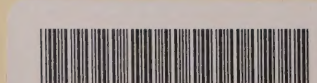
2016 ANNUAL REPORT

BURROUGHS WELLCOME FUND

FUNDING THE FUTURE OF

Science

2016 ANNUAL REPORT



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Research Triangle Park, NC 27709-3901
919.991.5100
www.bwfund.org

"What we wish to see in today's outstanding young researchers is creativity, originality, a unique way of looking at problems. And they must have tenacity, belief in their vision, and the will to pursue it."

GEORGE H. HITCHINGS

Making Personal Investments in Biomedical Research and Careers

SIXTY YEARS OF INVESTING IN SCIENTISTS AND BIOMEDICAL SCIENCE

Founded in 1955, the Burroughs Wellcome Fund is an independent private foundation dedicated to advancing the biomedical sciences by supporting research and other scientific and educational activities.

Within this broad mission, BWF seeks to accomplish two primary goals—to help scientists early in their careers develop as independent investigators, and to advance fields in the biomedical sciences that are undervalued or in need of particular encouragement.

BWF's primary approach is to target individual researchers at degree-granting institutions in the United States and Canada, providing financial support through our competitive, peer-reviewed award programs. In complement to our support of academic research, we also make grants to nonprofit organizations whose missions improve the overall environment for scientific activities and careers.

Above all, BWF establishes relationships and invests in the person. We prioritize the researcher's individual development—designing awards that enhance opportunities for training, collaboration, and idea-sharing. We then facilitate networks, gatherings, and conversations to further provide awardees with a diverse community of expertise, mentorship, and inspiration.

Our investment in the person ensures that each award has life beyond any single grant—that creative, original, and unique solutions to biomedical problems will continue to rise throughout an investigator's career—and in turn, confer good health and strength for all humankind.



A LEGACY ACROSS CENTURIES

BWF was created in 1955 as the corporate foundation of Burroughs Wellcome Co.—the U.S. branch of the historic Wellcome pharmaceutical enterprise.

The Wellcome enterprise was established in 1880 in the United Kingdom by two young American pharmacists, Henry Wellcome and Silas Burroughs, who moved to London to manufacture and sell "compressed medicines" —that is, pills—which they believed could replace the potions and powders of the day. The notion of standardized doses of easily consumed medication, as popularized by Burroughs and Wellcome, would change human health forever.

The firm prospered. After Burroughs died in 1895, Wellcome directed the growth of the company into an international network with subsidiaries in numerous countries on several continents. As the business grew, Wellcome held firm to his belief that research was fundamental to the development of excellent pharmaceutical products, and he established the industry's first research laboratories.

When Henry Wellcome died in 1936, his will vested all of his corporate shares in a new organization—the Wellcome Trust—devoted to supporting research in medicine and allied sciences, and to maintaining museums and libraries dedicated to these fields. From its London offices, the Trust grew to become the world's largest charitable foundation devoted exclusively to the biomedical sciences.

The Trust's global success inspired the establishment of BWF as a parallel foundation serving biomedical research in North America. In 1993, BWF received a $400 million gift from the Wellcome Trust to become a fully independent foundation, headquartered in the Research Triangle Park of North Carolina.

The importance of curiosity-driven research—as endorsed by Henry Wellcome more than 100 years ago—guides the mission of the Burroughs Wellcome Fund. Investing in the research and careers of the best and brightest scientists offers the fullest promise for improving human health, and we will continue our commitment to this belief in the years to come.

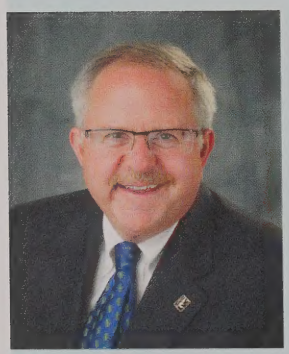
Interfaces in Scienc
($5.96 million)

BWF AWARDED $29.69 MILLION IN GRANTS DURING FISCAL YEAR 2016.

Infectious Diseases
($6.81 million)

Biomedical Science
($10.00 million)

President's Message



In fulfilling our mission the Burroughs Wellcome Fund supports biomedical research and education, but more than that our mission is heavily intertwined with supporting the people behind that research and education.

We fund creative risk-takers who are driven by a desire to make a contribution to society—whether to establish a better understanding of disease or encourage students to find their passion in critical and scientific thinking.

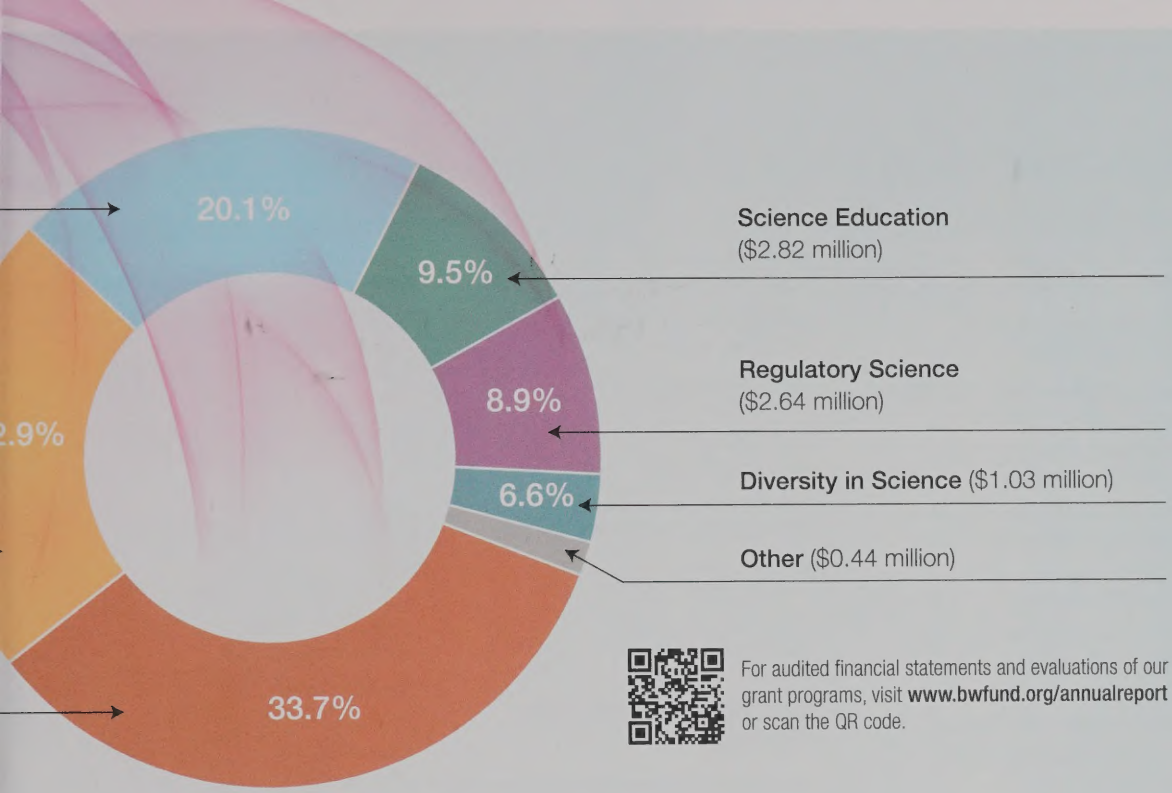
Our grants are a validation for innovative thinkers with remarkable new ideas. Our investments are designed to last more than just one project or award cycle—but for the lifetime of impact they will have on biomedical science, through researchers and educators.

To achieve the greatest impact, to find those areas of innovation and discovery, we invest in fields that are underfunded and in need of support. The Burroughs Wellcome Fund's grantmaking portfolio encompasses a range of initiatives that builds the pipeline for new scientists, kickstarts early career researchers, and continues as careers mature and lead to new discoveries.

To start the pipeline, the Burroughs Wellcome Fund is charting new paths for students and teachers to engage in STEM education in North Carolina. Our science education grants provide inspiration to the next generation of scientists by providing leadership funding for outstanding science and mathematics teachers, capital to begin informal STEM programs, and support for the general landscape of STEM education in North Carolina.

Our early career awards: Career Awards for Medical Scientists and Career Awards at the Scientific Interface encourage risk-taking in new research fields related to biomedical science. Our Investigators in the Pathogenesis of Infectious Disease Award provides support to assistant professor level researchers to pursue novel research protocols/discoveries.

To help encourage discoveries through the therapeutic pipeline, we have invested in the Innovation of Regulatory Science Award to help the FDA determine safety and value. To provide mentorship and career assistance we have established the Postdoctoral Enrichment Program, an award that provides professional development funding for underrepresented minority scientists, and the Career Guidance for Trainees is a broad reaching program that supports biomedical and scientific careers both inside and outside of academia.



For audited financial statements and evaluations of our grant programs, visit **www.bwfund.org/annualreport** or scan the QR code.

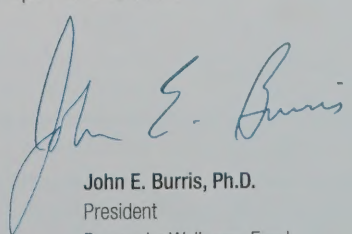
"We fund creative risk-takers who are driven by a desire to make a contribution to society—whether to establish a better understanding of disease or encourage students to find their passion in critical and scientific thinking."

These programs find people where they are—whether it be a middle school student, a new postdoc, or a seasoned researcher—and make critical career investments. We make investments in people.

In order to achieve true success, though, our work extends beyond funding. We cultivate relationships and partnerships with other organizations to help create a nurturing ecosystem for researchers and educators. We want to provide opportunities to collaborate, to connect, and to network across disciplines to better inform one another's work.

For example, each October, the Burroughs Wellcome Fund hosts its annual New Awardee Networking meeting. We invite all of our scientific awardees from the past year to gather at the Fund's headquarters in Research Triangle Park to share research, talk about career development, and connect with their fellow awardees, the Fund's staff, and our culture. This event is an opportunity to grow the network of leaders and provide a place where the Burroughs Wellcome Fund can be that connective mechanism critical to growing new ideas.

These leaders—our awardees and partners—are the people who are advancing biomedical research. It is an honor to lead the Burroughs Wellcome Fund in finding and supporting the problem-solvers in our field. When you invest in and bring together eager and brilliant minds, anything is possible. That should give us all hope for the future.



John E. Burris, Ph.D.
President
Burroughs Wellcome Fund

Fiscal Year 2016 Major Competitive Grant Awardees

CAREER AWARDS FOR MEDICAL SCIENTISTS

Jonathan Abraham, M.D., Ph.D.
Harvard Medical School

Heidi Leigh Cook-Andersen, M.D., Ph.D.
University of California-San Diego

Mariella Gruber Filbin, M.D., Ph.D.
Harvard Medical School

Andrew Michael Intlekofer, M.D., Ph.D.
Memorial Sloan-Kettering Cancer Center

Siddhartha Jaiswal, M.D., Ph.D.
Harvard Medical School

Devanand Sadanand Manoli, M.D., Ph.D.
University of California-San Francisco

Alexander Marson, M.D., Ph.D.
University of California-San Francisco

Seth Rakoff-Nahoum, M.D., Ph.D.
Harvard Medical School

Dhakshin Ramanathan, M.D., Ph.D.
University of California-San Francisco

Tiffany Crawford Scharschmidt, M.D.
University of California-San Francisco

Alexander Spektor, M.D., Ph.D.
Harvard Medical School

Bruce Mao Zheng Wang, M.D.
University of California-San Francisco

POSTDOCTORAL ENRICHMENT PROGRAM

Kyle Daniels, Ph.D.
University of California-San Francisco

Antonia Dominguez, Ph.D.
Stanford University

Simmie Foster, M.D., Ph.D.
Harvard Medical School

Walter Gonzalez, Ph.D.
California Institute of Technology

Nydiaris Hernandez-Santos, Ph.D.
University of Wisconsin-Madison

Samantha Lewis, Ph.D.
University of California-Davis

Hiruy Meharena, Ph.D.
Massachusetts Institute of Technology

Nicholas Ryan Meyerson, Ph.D.
University of Colorado-Boulder

Diana Monsivais, Ph.D.
Baylor College of Medicine

Anthony Olarerin-George, Ph.D.
Weill Cornell Medical College

Jihan Khara Osborne, Ph.D.
Harvard Medical School

Edwin Reyes, Ph.D.
Harvard Medical School

Jose Bernardo Saenz, M.D., Ph.D.
Washington University School of Medicine

Max Villa, Ph.D.
Duke University

Carolyn Yrigollen, Ph.D.
University of Pennsylvania

CAREER GUIDANCE FOR TRAINEES

Association of University Technology Managers

Keck Graduate Institute of Applied Life Sciences

Medical College of Wisconsin

Medical University of South Carolina

Rutgers University

Simmons College

University of California, San Francisco

INVESTIGATORS IN THE PATHOGENESIS OF INFECTIOUS DISEASE

Jörn Coers, D.Phil., Ph.D.
Duke University

Min Dong, Ph.D.
Harvard Medical School

Christine M. Dunham, Ph.D.
Emory University School of Medicine

Nels C. Elde, Ph.D.
University of Utah

Scott E. Hensley, Ph.D.
University of Pennsylvania

Audrey R. Odom, M.D., Ph.D.
Washington University

Alexander Ploss, Ph.D.
Princeton University

Amariliz Rivera, Ph.D.
Rutgers University

Sunny Shin, Ph.D.
University of Pennsylvania Perelman School of Medicine

Joseph C. Sun, Ph.D.
Memorial Sloan-Kettering Cancer Center

CAREER AWARDS AT THE SCIENTIFIC INTERFACE

Ahmet F. Coskun, Ph.D.
California Institute of Technology

Alexander G. Huth, Ph.D.
University of California-Berkeley

Ashley Laughney Bakhoum, Ph.D.
Sloan-Kettering Institute

Michael J. Mitchell, Ph.D.
Massachusetts Institute of Technology

Arthur Prindle, Ph.D.
University of California-San Diego

Adrianne Marie Rosales, Ph.D.
University of Colorado-Boulder

David M. Schneider, Ph.D.
Duke University

Amy Wesolowski, Ph.D.
Princeton University

Jing Yan, Ph.D.
Princeton University

Weijian Yang, Ph.D.
Columbia University

STUDENT SCIENCE ENRICHMENT PROGRAM

Association for the Preservation of the Eno River Valley

Aurora Fossil Museum Foundation

Charlotte/Mecklenburg Schools

Elizabeth City State University

Elon University

Foundation of the Carolinas

Friends of the North Carolina State Museum of Natural Sciences

Lenoir County Public Schools

Mount Airy City Schools

North Carolina State University

Orange County Schools

Rowan-Salisbury Schools



2016 Highlights

Each year the Burroughs Wellcome Fund gathers the recent cohort of grant recipients at the Fund's headquarters in Research Triangle Park, NC. This provides an opportunity for introduction to the Fund's staff and to peers and colleagues across scientific disciplines. The Fund invites past awardees to share their experience and discuss the scientific career path.

On these pages are photos from the new awardee meeting, which is certainly one of our highlights from the past year. Throughout the annual report are highlighted Tweets from the past year, a medium through which we have slowly gained traction. You can follow us on Twitter at @bwfund.



@Sharlini_NC 28 Jul 2016

Privileged today to hear from George Langfor @BWFUND board member—he was part of Fayetteville civil rights sit in & integration.

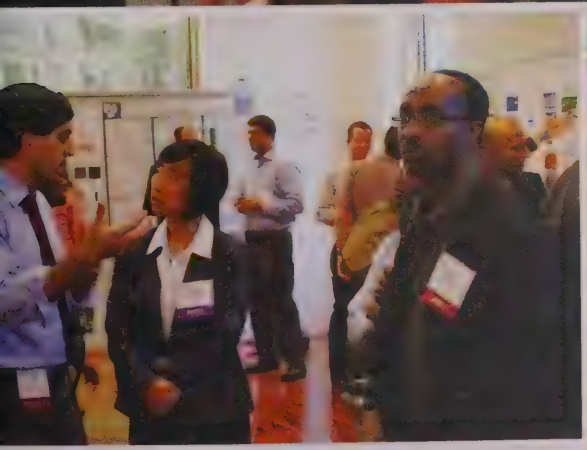
@DukeU





An amazing day of science experiments at NCCAT with Wautaga County Schools Science PALS!







Sam Houston inducted into ECU Educators Hall of Fame!



Biomedical Sciences

Career Development of Biomedical Scientists

The biomedical sciences provide a firm foundation for improving human health. But to advance biomedical science, we have to close gaps in developing biomedical research talents.

The Burroughs Wellcome Fund is committed to fostering the development of the next generation of academic research scientists. Through our Biomedical Sciences portfolio, we identify and invest in talent pathways and career development elements that best benefit the current needs of the biomedical research landscape.

Today, our major focus is the Career Awards for Medical Scientists (CAMS). CAMS addresses the on-going need to increase and sustain the number of physician-scientists within the ranks of biomedical researchers, and to build synergy between basic research and clinical practice. BWF believes that these physician-scientists can bring unique perspectives to solving biomedical problems, given their dual experience in clinical training and hypothesis-based research. As such, the CAMS program is designed to help medical doctors transition into research careers, as they complete postdoctoral fellowship training and early years of faculty service.

A supplementary focus is our Collaborative Research Travel Grant (CRTG). BWF understands that science is a process best shared. But often in biomedical research, prospective colleagues or cutting-edge equipment are located at distant institutions, and funding limitations may preclude these exploratory, enriching visits. The CRTG grant allows investigators and postdocs to make these domestic and international travels — and develop their skills, collaborations, and career directions.

CAREER AWARDS FOR MEDICAL SCIENTISTS (CAMS)

The declining participation of the physician-scientist in biomedical research is an on-going problem.

Physician-scientists offer unique perspectives that bridge real-world practice with the lab bench: their synergy of clinical training and research thinking can bring new insights to solving biomedical challenges. We need to increase the number of physician-scientists, keep them in research, and sustain their presence among research communities and institutional leadership.

The Burroughs Wellcome Fund wants to help more physician-scientists become established in academic careers. To facilitate a physician's transition from medical service commitments towards active research, we have reformulated our successful Career Awards in the Biomedical Sciences (CABS) program into the Career Awards for Medical Scientists (CAMS).

CAMS is tailored for physician-scientists who are still in a mentored, non-faculty position such as a residency, fellowship, or postdoc. The award provides $700,000 in funding over five years for a physician-scientist to bridge the final years of their advanced postdoctoral or fellowship training, and their early years of faculty service and independent research.

Our hope is to steer more physician-scientists towards tenure-track academic appointment in basic biomedical, disease-oriented, or translational research, with at least 75-percent protected time for research activities. We also seek out applicants whose specialties align with emerging gaps in biomedical science, such as the interface of neuroscience and the practice of psychiatry.

To advance biomedical science, we have to amend gaps in developing biomedical research talents. Increasing and sustaining physician-scientists in biomedical research careers will ensure the continued contributions of these unique talents — and strengthen our overall prospects for improving human health.

COLLABORATIVE RESEARCH TRAVEL GRANT (CRTG)

The Burroughs Wellcome Fund understands that science is a process best shared. But often in biomedical research, prospective colleagues or cutting-edge equipment are located at distant institutions, and funding limitations may preclude these exploratory, enriching visits.

BWF helps researchers make those trips. Our Collaborative Research Travel Grants (CRTG) provide up to $15,000 for domestic or international travel for one year — helping investigators and postdoctoral trainees to visit labs at other institutions to learn new research techniques, or to begin or continue research collaboration.

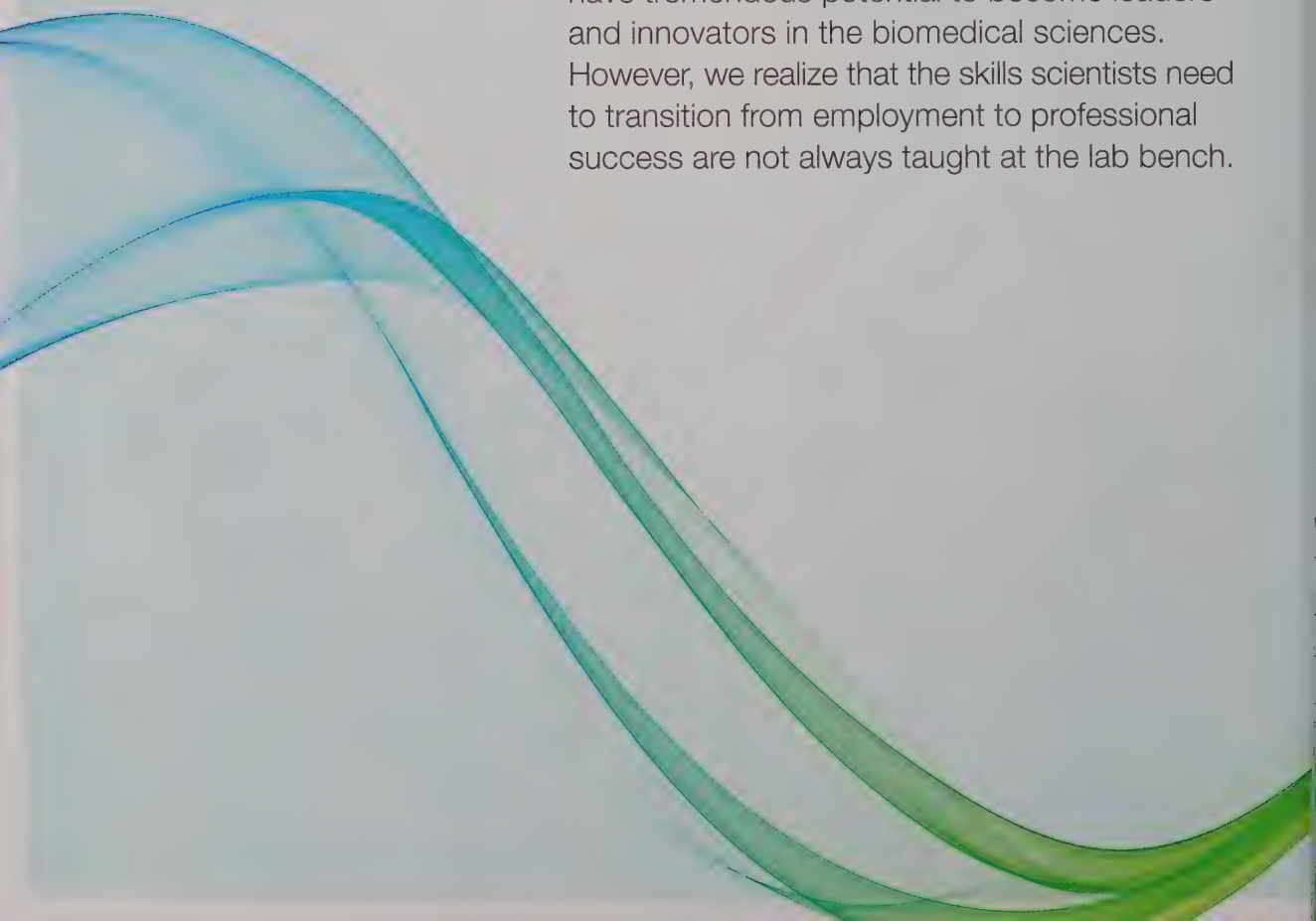
CRTG funds can be applied towards airfare, accommodations, meals, ground transportation, and other travel expenses — as well as lab supplies and other materials required for the visit. Researchers can make multiple visits to one collaborator or visit multiple collaborators. Those with doctorate-level training in the physical, mathematical, or engineering sciences have been especially encouraged to apply.

BWF knows that the best brainstorming and innovation happens when researchers can collaborate and share ideas in person. The CRTG program lets our awardees visit a colleague — and grow their skills, their collaboration, and their career. We want them to meet up, and make science happen.

Career Guidance

Providing Professional Guidance for Biomedical Researchers

The Burroughs Wellcome Fund primarily invests in trainees and early-career investigators who have tremendous potential to become leaders and innovators in the biomedical sciences. However, we realize that the skills scientists need to transition from employment to professional success are not always taught at the lab bench.



Graduate programs classically provide Ph.D. trainees with deep knowledge, hands-on experience, and the ability to ask meaningful questions and find answers to them. But for many employers, the most desirable job candidates also have experience managing projects and people; the capacity to think independently, with initiative and entrepreneurialism; and advanced practice in communicating clearly about complex ideas.

Yet, emphasis on this comprehensive mentoring approach may fall short in some research training environments. At the same time, students, postdocs, and mid-life career-changers often report frustrations in attempting to translate their full skill set to tasks within and beyond the academic realm.

The Burroughs Wellcome Fund will continue to invest in pilot projects that demonstrate practical approaches to prepare scientists for career transitions, through our Career Guidance for Trainees award. We want to assess approaches that help trainees acquire and hone the skills expected of knowledgeable workers and institutional leaders. We also want to help scientists find their optimal path within the research landscape — whether as principal investigators, in non-tenure track positions, in industrial careers, or in scientific careers away from the bench.

In all other professional training environments — commercial, legal, spiritual, among others — there is an intentional emphasis on leadership, management, and career guidance. So let's improve how we prepare biomedical scientists for jobs at and away from the lab bench, and give research professionals the professional guidance they deserve.



CAREER GUIDANCE FOR TRAINEES (CGT)

Planning for careers is difficult in any field — yet this is one facet that academic bodies often neglect when cultivating scientific talents.

To give research professionals the professional guidance they deserve, the Burroughs Wellcome Fund conducts the CGT award.

The program provides one-year grants up to $50,000 for academic institutions, professional societies, and other nonprofit organizations to demonstrate affordable projects that help individual scientists assess their personal growth and effectively pursue career paths.

BWF aims to advance innovative proposals that have the potential to be deployed on a larger scale. An idea should augment the basic "Ph.D.-level" skills already offered by institutions — by helping research trainees discover and match their skills and interests with potential employers, or by providing them the tools to critically assess their vocational strengths with professional options.

Our intentions are inspired by two national programs not developed with BWF support: FASEB's Individual Development Plan, a tool that helps structure key conversations between trainee and advisor; and Preparing Future Faculty, a program that provides trainees opportunities to observe and experience faculty responsibilities. Both offer high-impact career preparation opportunities, and began at a pilot scale before being adopted across the United States.

As institutional leaders training future professionals in science — our future colleagues — we have a responsibility to ensure a certain caliber and educated strategy in the mentorship we provide.

So we are encouraging innovations in scientific career counseling. Our goal is to help researchers navigate their vocational journey — and guide them to fulfilling professional paths matching their individual strengths with scientific challenges.

Career Development Guides The Fund developed a series of career development guides that focus on a number of issues scientists face. They explore giving talks, staffing your lab, team science, intellectual property, and others. Email news@bwfund.org for a full offering.

Diversity in Science

Enriching Biomedical Research With New Voices and Faces

The Burroughs Wellcome Fund believes that racial, ethnic, and cultural diversity is essential to the process and advancement of scientific innovation, academic discourse, and public service. In 2012, we launched the Diversity in Science program with the specific goal of supporting trainees from communities of color currently underrepresented in biomedical research.

Molding a diverse research community begins with mentoring diverse talents. To address this foundational issue, BWF has created the Postdoctoral Enrichment Program to support early career scientists and engineers of Latino, Native-American, Pacific Island, and African-American descent. The grant provides postdoc-mentor pairs in the United States and Canada with funding to enhance research productivity and career counseling resources — to help early-career scientists develop as independent investigators.

The Burroughs Wellcome Fund makes personal investments in biomedical research and careers. Enriching biomedical and medical research with new voices and faces is simply fundamental to the BWF ethos of supporting researchers who hold promise for creative, original, and unique solutions to biomedical problems.

When we invest in diversity in science, the perspectives and innovations in biomedical research will grow to match the diversity of the peoples and communities we seek to heal and serve—and the trainees we invest in today will form a diverse mentorship for trainees to come.

POSTDOCTORAL ENRICHMENT PROGRAM (PDEP)

The Burroughs Wellcome Fund wants to help advance the biomedical careers of underrepresented researchers from communities of color. We believe that racial, ethnic, and cultural diversity is essential to the process and advancement of scientific innovation, academic discourse, and public service.

BWF has created the PDEP to support early career scientists and engineers of Latino, Native-American, Pacific Island, and African-American descent, through training and mentoring support. PDEP awards a total of $60,000 over three years to postdoc-mentor pairs in biomedical or medical research, who are citizens of the United States or Canada, and hosted at a degree-granting institution in the United States or Canada.

Funding through PDEP supports participation in the following activities:

Opportunities for the PDEP postdoctoral fellow to enhance their research productivity. Examples include travel and attendance to workshops, courses, and trainings in new techniques; or meetings and events that launch new collaborations and knowledge transfer.

Opportunities for the PDEP mentor to develop and provide mentoring resources at their home institution, to increase the research productivity and long-term career success of the postdoctoral fellow. Examples include career guidance discussions, research management trainings, or professional development in grant writing, communication, and other skills demanded of future principal investigators.

Opportunities for the PDEP mentor to attend an annual meeting of PDEP mentors hosted by the Burroughs Wellcome Fund.

Opportunities for the PDEP postdoc-mentor pair to participate in a national peer network of underrepresented minority postdoctoral scholars to foster inter-institutional collaboration and greater community engagement.

We need to enrich biomedical and medical research with new voices and faces. But molding a diverse research community begins with mentoring diverse talents. The Burroughs Wellcome Fund wants to hear from underrepresented postdocs and mentors working at the frontlines of scientific discovery, and invites their application for the PDEP fellowship.

We want help in identifying these exciting scientists — and help in — mentoring diverse voices and faces to advance biomedical research careers.

Infectious Diseases

Answering Persisting Questions on the Mechanisms and Nature of Human Pathogens

Investigations into infectious diseases have been in the Burroughs Wellcome bloodline for more than a century, ever since Henry Wellcome established his first tropical disease laboratory in the Sudan in 1902. Today, we still need new answers to fundamental questions on human infectious diseases.



The Burroughs Wellcome Fund has supported an Infectious Diseases program since 1981, when it began funding modern molecular approaches to understanding what have been called the great neglected diseases—malaria, the pathogenic fungi, and human parasites—that affect people in countries around the world. Then, as more institutions focused their attention to the prevention and treatment aspects of these diseases, BWF shifted its aim towards the research questions and angles still in dire need of investigation.

Since 2000, we have directed our resources through our Investigators in the Pathogenesis of Infectious Disease award. PATH encourages seasoned investigators at the assistant professor level to explore how specific pathogens—be they of bacterial, viral, fungal, eukaryotic, or other physiologies—interact with the human body to damage human health.

We want investigators to apply their own expertise to daring, multidisciplinary approaches, blending the biochemical, pharmacological, immunological, and molecular—and test creative ideas for answering the persisting questions on the mechanism and nature of human pathogens.

INVESTIGATORS IN THE PATHOGENESIS OF INFECTIOUS DISEASE (PATH)

How do human hosts handle infectious challenge? How can we shed light on the interplay between human and microbial biology, and explain how human health can be damaged by these encounters?

To answer these persisting questions, we need to be daring in our investigations into the mechanisms and nature of human pathogens.

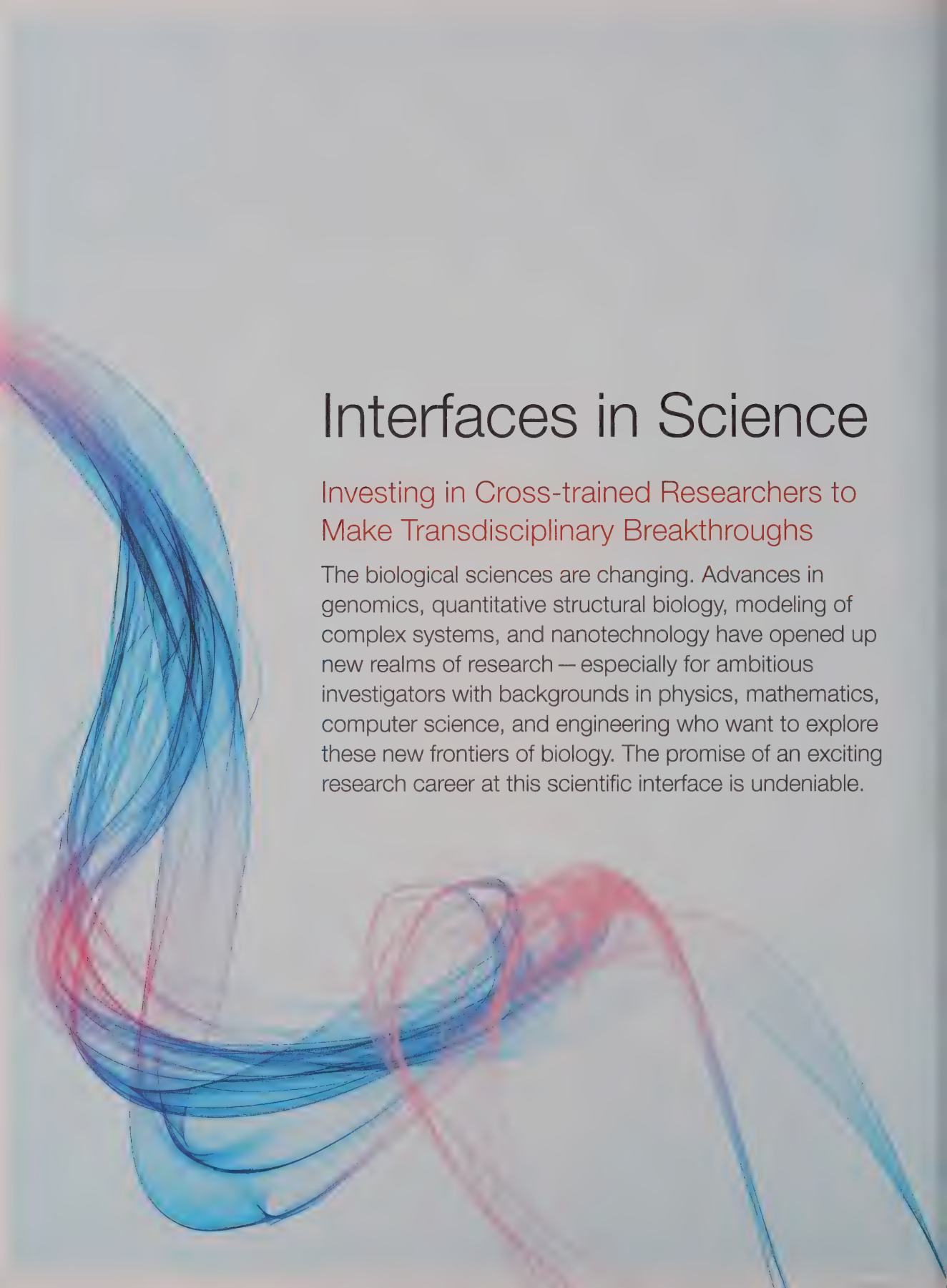
Through our highly competitive PATH award, the Burroughs Wellcome Fund provides $500,000 over a period of five years for investigators at the assistant professor level to study pathogenesis.

PATH seeks investigators still early in their careers, who want to apply their own expertise to daring, multidisciplinary approaches blending the biochemical, pharmacological, immunological, and molecular.

We encourage proposals explaining how specific pathogens—be they of bacterial, viral, fungal, eukaryotic, or other physiologies—interact with the human body to damage human health. What affects the outcomes of these encounters? How do colonization, infection, commensalism, and other relationships play out at levels, from molecular interactions to systemic ones?

BWF wants to give these accomplished investigators the freedom and flexibility to pursue daring avenues of inquiry and higher-risk research projects—and advance their careers as innovators in infectious disease research.

[illegible] bacteria. Medical experts struggle to prevent future pandemics as antibiotics become less effective.



Interfaces in Science

Investing in Cross-trained Researchers to Make Transdisciplinary Breakthroughs

The biological sciences are changing. Advances in genomics, quantitative structural biology, modeling of complex systems, and nanotechnology have opened up new realms of research — especially for ambitious investigators with backgrounds in physics, mathematics, computer science, and engineering who want to explore these new frontiers of biology. The promise of an exciting research career at this scientific interface is undeniable.

In recognition of the vital role such cross-trained researchers will play in furthering biomedical science, the Burroughs Wellcome Fund is making major investments in early-career researchers with undergraduate and graduate training in the physical, chemical, or computational sciences.

BWF has formed the Career Awards at the Scientific Interface award to catalyze the future careers of these creative, transdisciplinary talents. We believe that their unique perspective and expertise — and their career potential as faculty members and institutional leaders — will spark the exploration of toolkits, lenses, and machinery previously unimaginable in biomedical research.

From cell theory to DNA, great leaps in the biological sciences have always resulted from advances in how researchers detect, visualize, and manipulate the mechanisms of life.

We now stand at a new frontier where great changes in biological sciences await again. We are investing in cross-trained researchers who can navigate this interface of sciences — so they can make transdisciplinary breakthroughs for the benefit of human health.

CAREER AWARDS AT THE SCIENTIFIC INTERFACE (CASI)

Possibilities at the interface of biological, physical, computational, and engineering sciences have never been more exciting. Biomedical researchers are now blending technologies and inspirations transcending varied disciplines — giving us toolkits, lenses, and machinery previously unimaginable, and with the potential to advance human health.

The Burroughs Wellcome Fund wants to cultivate investigators who are pushing the frontiers of these exciting possibilities. To do so, we have formed the CASI program as a career catalyst for creative, cross-trained researchers in biomedicine and biophysics.

CASI awards are open to U.S. and Canadian citizens or permanent residents, as well as to U.S. temporary residents. The program provides $500,000 over five years — as well as job placement mentoring and professional networking resources — to help early-career researchers bridge their advanced postdoctoral training with their first three years of faculty service.

Through CASI, the Fund hopes to encourage scientists and engineers whose pre-doctoral work in chemical, physical, mathematical, and computational fields now prepares them to make grand leaps as postdoctoral and faculty researchers in biomedicine. Past awardees have explored programming paradigms for controlling robotic human limbs; imaging techniques to resolve intercellular dynamics or neural circuit function; biomagnetic matrices for stem cell cultures; chemical and evolutionary bases of circadian rhythms; spatiotemporal controls of embryonic tissue arrangement; and many other scientific interfaces.

We need more transdisciplinary talent who can break through these biomedical frontiers. The Burroughs Wellcome Fund is willing to invest in researchers whose beginnings today will flourish into creative, original, and unique solutions to biomedical problems throughout their career — and advance new possibilities in human health in return.



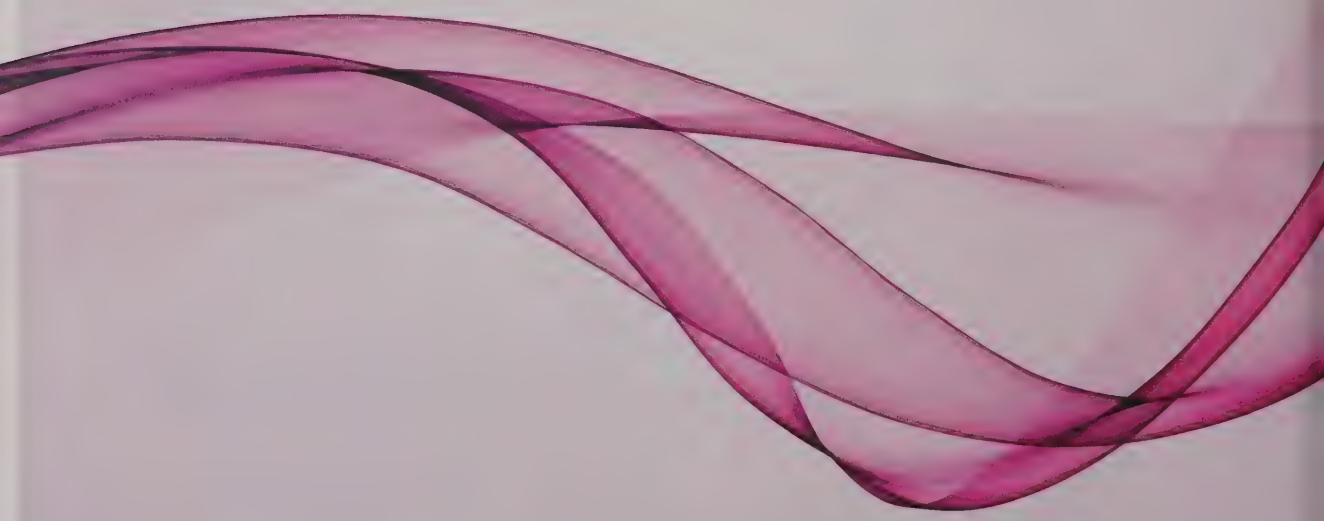
Michael Mitchell
Career Award at the S

Population and Laboratory Based Sciences

A Lens Upon the Whole of Human Health

The biomedical sciences have traditionally advanced through discoveries and innovations at the lab bench, analyzing and unraveling the microscopic secrets of cellular function or molecular properties.

But today, the omnipresent reach and resources of the Information Age offer researchers a new lens with which to investigate human health—and bridge insights from controlled experiments at the lab bench with multivariate analyses of human populations and environments.



We need investigators who understand the levers of human health at all different scales. Researchers with this ability to consider tools and perspectives across scales of analyses will hold great advantage in tackling complex questions in environmental health, infectious diseases, chronic diseases, and other fronts.

Recognizing this advantage, the Burroughs Wellcome Fund has created the Institutional Program Unifying Population and Laboratory Based Sciences award. We want to encourage institutions to design new programs that train researchers in the ideas, techniques, and nuances of human health — both at the molecular scale and at the population scale.

We want to see more investigators in action who can bring together epidemiological, population genetic, geospatial, socioeconomic, and other kinds of "larger world" data, together with the mechanistic and experimental data gained at the lab bench. We need to cultivate these investigators who can look for biomedical solutions at multiple scales — investigators who can hold a lens upon the whole of human health.

INSTITUTIONAL PROGRAM UNIFYING POPULATION AND LABORATORY BASED SCIENCES (PUP)

The collaborative potential between lab bench science and public health research is tantalizing. Yet, institutions with investments in both capabilities sometimes underutilize this connection — leaving trainees and resources isolated in their respective silos.

At these institutions, we ought to be training research fluency from the micro to the macro. We should be unifying training resources in experimental, bench-based science with those in statistical, population-based science — to create a new cadre of broad-thinking investigators in environmental health, infectious diseases, chronic diseases, and other fronts.

In response to this need, the Burroughs Wellcome Fund created the PUP award. The PUP award provides $500,000 per year over five years to participating institutions, so they may establish training programs that bring together researchers in its school of medicine with those in its school or department of public health. Proposals may result in free-standing graduate programs or newly defined tracks within existing programs.

We want these programs to develop investigators versed in the ideas, techniques, and nuances of human health — both at the molecular scale and at the population scale. Past PUP-supported programs have followed the themes of data science, infectious disease and human-microbe interactions, or chronic diseases and wellness, but the possibilities are open to the creative vision of each institution. The curriculum could combine genomics with phenomics; address questions of population genetics; unite molecular and environmental epidemiology; or other conceptual syntheses. Partnerships with government, industry, and international organizations — especially those specializing in econometrics, demographics, applied mathematics, anthropology, and other fields not traditionally represented in biomedical research — are especially encouraged.



Elizabeth Kiratu talks [illegible] with @E on Notebook @BWFUND fellow @ChristinaSelby.

Regulatory Science

Keeping Government Regulations Apace with Biomedical Advances

The Institute of Medicine defines "regulatory science" as the science of developing new tools, standards, and approaches to assess the safety, efficacy, quality, and performance of FDA-regulated products.

But regulatory science itself is an underserved area of research. National policies and regulations on new biomedical therapies should be supported by state-of-the-art science data — yet given the pace of innovation and fiscal realities, agencies often lack the resources to fully address each and every emerging regulatory question.

Academic researchers can help agencies meet this demand. Recognizing the need and the opportunity, the Burroughs Wellcome Fund has made Regulatory Science among its major initiatives for funding.

Our Innovation in Regulatory Science Award specifically funds academic investigators to assess the safety and efficacy of new therapies. We seek investigators who can leverage their multidisciplinary expertise and institutional resources towards new methodologies or approaches for vetting novel therapies — and produce timely knowledge and evidence that can directly assist U.S. and Canadian agencies in making regulatory decisions.

Regulations in biomedical therapies exist to balance public benefit with informed risk, and the demand for informed policymaking is as limitless as the frontier of medical therapies. To advance biomedical science and its promise for public good, the Burroughs Wellcome Fund will continue its encouragement of regulatory science — keeping government regulations apace with biomedical advances.

INNOVATIONS IN REGULATORY SCIENCE AWARD (IRSA)

Regulations in biomedical therapies exist to balance public benefit with informed risk. Appropriately, these national policies and regulations should be supported by state-of-the-art science data and evidence.

But given the pace of innovation and fiscal realities, agencies often lack the resources to fully address each and every emerging regulatory question.

To help the Food and Drug Administration (FDA) and other U.S. and Canadian agencies close this gap, the Burroughs Wellcome Fund created the IRSA.

IRSA offers investigators up to $500,000 over five years to develop innovative and implementable solutions to regulatory questions. Applications are open to U.S. and Canadian citizens or permanent residents who have a faculty or adjunct faculty appointment at a North American degree-granting institution.

Applicants must explain how their research will have direct implications for regulatory policy — including the strategy and timeline for an agency to receive and consider the findings in their regulatory decision-making, as well as any potential pitfalls and the major validation steps required.

Beyond this, the possibilities are as limitless as the frontier of medical therapies. We invite collaborations and talents spanning mathematics, computer science, applied physics, medicine, engineering, toxicology, epidemiology, and systems pharmacology, and any other field spanning biomedical, biophysical, and biostatistical disciplines.

The Burroughs Wellcome Fund recognizes that regulatory science is an important, underserved area of research. We want to fund investigators who can anticipate and assess the future of health therapies and technologies — and strengthen the biomedical knowledge informing national regulatory decisions.

Reproductive Sciences

Nourishing New Research Into Parturition Science

The action of birth is shrouded in elegant complexity. It is the culmination of biochemical chain reactions, cellular differentiation, and other physiological, behavioral, and environmental mechanisms. Individually, they are measurable—together, much remains a mystery.

For years, the Burroughs Wellcome Fund has recognized reproductive sciences as an undervalued and underfunded area of research. Via our ad hoc grants, we provided early-career development funding for reproductive scientists and for OB/GYN physician-scientists.

In 2008, we began to formally invest in Reproductive Sciences as a major funding program. Today, our focus is to seek new ideas and partnerships to increase research into human parturition.

The program's first efforts were a series of biannual conferences on preterm birth research. Together with the March of Dimes, the Burroughs Wellcome Fund hosted the Biannual Symposium on Preventing Prematurity in 2008, 2010, 2012, and 2014.

Our Reproductive Sciences program is currently headlined by the Preterm Birth Initiative, an award aimed to increase our understanding of the mysteries and mechanisms of spontaneous preterm births — the leading cause of neonatal morbidity and mortality in children. Through these awards, BWF hopes to invigorate multidisciplinary collaborations and attract new investigators towards this area of research.

The triggers and factors of birth — however shrouded and complex — can impart mortal and lasting impacts on human life and well-being. The Burroughs Wellcome Fund intends to rally new talent and new approaches to explore these mysteries — nourishing new research into parturition science.

PRETERM BIRTH INITIATIVE

As part of our mission to support underserved fields of biomedical research, the Burroughs Wellcome Fund has created a grant to stimulate new insights into the mechanisms underlying spontaneous preterm birth.

Despite medical and technological advances, the rate of preterm births in the United States remains higher today than 20 years ago. Approximately 12 percent of births in the U.S. are considered preterm, and many physiological and behavioral health problems can be attributed to preterm delivery. Worse, preterm birth is currently the leading cause of neonatal morbidity and mortality in children.

For a medical phenomenon with such grave health and social consequences, little is known about preterm birth and its causes. The Burroughs Wellcome Fund intends to change this through its Preterm Birth Initiative.

Through this competitive award, BWF provides sole- or multi-investigator teams up to $600,000 over a four-year period. Principal investigators must be postdoctoral fellows in their final two years of training, or hold a faculty appointment at a degree-granting institution in the U.S. or Canada. Principal investigators must be citizens or permanent residents of the U.S. or Canada.

We want awarded teams to consider approaches in both basic and translational research, linking expertise within and outside of reproductive science. Molecular and computational approaches such as genetics and genomics, immunology, microbiology, evolutionary biology, mathematics, engineering, and other sciences should be interwoven with insights from more traditional aspects of parturition research such as maternal-fetal medicine, obstetrics, and pediatrics.

Uncovering the mysteries of preterm births will advance reproductive science and impact human lives.

Congrats to BWF Board Member and UCSF biochemist, Bruce Alberts, wins prestigious medical award.

Science Education

Empowering North Carolina's Children With Scientific Potential

At the heart of all that we do to support biomedical science in the U.S. and Canada, one particular ideal drives our intentions: establish relationships and invest in the person.

It is this same philosophy that drives our decision to invest in science education in North Carolina.

When the Burroughs Wellcome Fund became a fully independent, philanthropic foundation in 1994, we established our headquarters in the Research Triangle of North Carolina — a powerhouse of scientific innovation in the Nation and the world. In making North Carolina our home state, we also recognized our newfound responsibility to invest in the people and community here.

Looking at the Fund's own strengths and looking at the Research Triangle's academic advantage — a microcosm of the disparity and potential present throughout the Tar Heel State — our imperative was clear. Our science education investment begins with North Carolina's students and educators.

The Burroughs Wellcome Fund is proud to invest in Science Education as one of its major programs. Our goal is to establish relationships and invest in individual access to STEM education — science, technology, engineering, and mathematics — for communities in all 100 counties of North Carolina.

- Through our Student Science Enrichment Program, we are giving K-12 students in North Carolina added opportunities to experience critical thinking and the excitement of discovery — by investing more than $3 million annually for schools, organizations, and institutions to create and deliver science education activities outside the classroom.
- Through our Career Awards for Science and Mathematics Teachers, we look for proven public school teachers in North Carolina whose vision and effort for STEM access in their community serve as shining examples — and we further buoy that teacher's influence and impact with a $175,000 grant for salary, supplies, and professional development opportunities.
- Through our Promoting Innovation in Science and Mathematics awards, we want to give public school teachers with ingenious, classroom-ready ideas for stimulating STEM learning the chance to put their ideas into play — with one-time grants up to $4500 for materials, equipment, and training.
- Finally, we founded the North Carolina Science, Mathematics, and Technology Education Center (SMT). Since 2004, this non-profit organization has amplified our goal of advancing meaningful STEM opportunities in our classrooms — centralizing materials, equipment, and professional development resources for educators to easily access.

Empowering North Carolina's children with scientific potential — that is how we believe the Burroughs Wellcome Fund can best give back to our home state. We can harness the financial and material resources of our many established partnerships to improve public policy, teacher training, the informal science community, and scientist-educator collaborations. We can invest in individual educators whose natural talents can ignite that one student's curiosity and engage them in the scientific process.

If we are successful in these investments, we will have imparted an even greater gift for North Carolina: that our children, regardless of their future career path, have the science literacy to participate fully in civic life — and advance the potential of our state and our Nation.

STUDENT SCIENCE ENRICHMENT PROGRAM (SSEP)

As part of our Science Education initiative, the Burroughs Wellcome Fund wants to empower North Carolina's children with scientific potential. This means supporting the good work of talented, licensed educators in our K-12 schools — but it also means connecting our students with STEM enrichment opportunities outside the schoolyard.

Fortunately, some of the best universities, museums, and scientific organizations in the Nation are right in North Carolina — and they are ideal partners for SSEP.

The Burroughs Wellcome Fund created SSEP specifically to fund and support out-of-school STEM activities for K-12 students in North Carolina. SSEP awards provide up to $60,000 per year for three years for the creation and implementation of after-school, weekend, or summer science programs.

SSEP recipients are limited to non-profit institutions within North Carolina, such as colleges, museums, zoos, as well as public and private schools and community groups. Proposed programs must be designed in consideration of school curricula; implemented by well-trained staff; and structured with learning objectives and post-participation assessments.

To-date, BWF has awarded $31.5 million in SSEP funding, supporting STEM enrichment programs across all 100 counties in the state. In 2015 alone, funded proposals were received from UNC campuses, NC State, Duke, Wake Forest, and Elon; Cape Fear Community College Foundation; Burke County Public Schools; Marbles Kids Museum; Beaufort County Police Activities League; the Cherokee Boys Club; and many other Tribal, state, municipal, and community groups.

The State of North Carolina is blessed with natural beauty, technology hubs, and great universities — a veritable haven for experiential learning in STEM fields. We are pleased that the community leaders and STEM institutions of North Carolina are connecting our children with opportunities for STEM enrichment. Let your scientific playground be their classroom.

CAREER AWARDS FOR SCIENCE AND MATHEMATICS TEACHERS (CASMT)

North Carolina has one of the Nation's top scientific economies. And our continued competitiveness in research, medicine, technology, agriculture, and manufacturing relies on a workforce inspired and mentored by a special cadre of equally hardworking professionals: the science and math educators in our public schools.

In our support of science education in North Carolina and in all of our philanthropic activities, the Burroughs Wellcome Fund is guided by one particular ideal: establish relationships and invest in the person.

Just as we prioritize the development of individual scientists, we also created an award program that enhances the professional development of a promising science or mathematics educator to reward the best teachers to inspire our children in the classroom.



The Burroughs Wellcome Fund is proud to recognize through CASMT mid-career, K-12 teachers in North Carolina public schools who have proven their command of science or mathematics subject matters, demonstrated outstanding consistency and success in pedagogy, and are ready to emerge as mentors and innovators within the STEM community of our state.

These star teachers are awarded $175,000 over a period of five years to support their professional development, augment their equipment needs, and supplement their public salary. Awardees are also encouraged to reach beyond their school to build collegial learning communities within their district or region, and to develop strategies for their personal growth as teaching professionals and leaders of practice.

Our belief in "investing in the person" ensures that each award has life beyond any single grant. That creative, original, and unique ideas will continue to rise throughout an awardee's career — and in turn, strengthen the greater teaching community and empower the scientific potential of North Carolina's children — those are our ultimate reasons for investing in North Carolina's best science and math educators.

PROMOTING INNOVATION IN SCIENCE AND MATHEMATICS (PRISM)

Here's a question for STEM teachers: "What great lesson plan could you finally try out if you had up to $4,500 in hand?"

If you're a professional educator licensed to teach in a North Carolina K-12 public school — and you have an ingenious, classroom-ready idea for inducing student learning in STEM — you just might be able to turn it into reality.

The Burroughs Wellcome Fund created the Promoting Innovation in Science and Mathematics (PRISM) grant to help North Carolina public school teachers create exciting, hands-on learning experiences in class or after school.

The award provides up to $3,000 for one year to cover the costs of equipment, materials, and supplies for instructional use — with an additional $1,500 if additional training is required to implement the new equipment or curriculum. The grant cannot go towards basic classroom technology equipment such as laptops and projectors, nor can it be used for field trips and guest speakers.

As part of our Science Education initiative, the Burroughs Wellcome Fund wants to empower North Carolina's children with scientific potential. We want to see more students engaged in innovative lessons and activities that spark their enthusiasm and guide them through critical inquiry — positive experiences that help instill a life-long hunger for science and math learning.

We know every brilliant, passionate teacher has a great idea saved away and our goal is to put your great STEM lesson plan into action.

Science and Philanthropy

The Burroughs Wellcome Fund makes noncompetitive grants for activities and career development opportunities for scientists that fall outside of our competitive award programs, but are closely related to our targeted areas.

We place special priority on working with nonprofit organizations, including government agencies, to leverage financial support for our targeted areas of research, and on encouraging other foundations to support biomedical research. Proposals should be submitted to BWF by email. Mailed requests should be no more than five pages.

Applicants should describe the focus of the activity, the expected outcomes, and the qualifications of the organization or individuals involved; provide certification of the sponsor's Internal Revenue Service tax-exempt status; and give the total budget for the activity, including any financial support obtained or promised. Proposals are given careful preliminary review, and those deemed appropriate are presented for consideration by BWF's Board of Directors.

Applications are accepted throughout the year.

Report on Finance

The Burroughs Wellcome Fund's investments totaled $703.7 million on August 31, 2016, the end of our fiscal year. BWF's primary financial goal is to pursue an investment strategy that will support annual spending needs and maintain a constant real level of assets over the long term. To achieve this goal, a high percentage of our investments are placed in strategies that derive the bulk of their returns from exposure to U.S. and international capital markets. Hence, fluctuations in BWF's investment results will be due largely to variability in capital market returns.

BWF's investment policies are developed with the recommendations and review of the Investment Committee, which is appointed by and reports to BWF's Board of Directors. The committee, which meets three times a year, has six voting members, including four representatives from outside BWF and two representatives of our board. The board's chair, BWF's president, and BWF's vice president for finance also serve on the committee as nonvoting members.

As part of BWF's investment strategy, we have established "allocation targets"—that is, percentages of our total assets to be invested in particular asset classes. Investment managers hired by BWF pursue more focused mandates within each sector. As of the end of the fiscal year, BWF's asset mix and market values were:

- U.S. large capitalization equity assets had a market value of $162.6 million. The sector's target allocation was 25 percent, and actual holdings stood at 23.1 percent.
- U.S. small capitalization equity assets had a market value of $112.4 million. The sector's target allocation was 18 percent, and actual holdings stood at 16.0 percent.
- International equity assets had a market value of $175.6 million. The sector's target allocation was 32 percent, and actual holdings stood at 24.9 percent.
- Fixed income assets had a market value of $130.0 million. The sector's target allocation was 22 percent, and actual holdings stood at 18.5 percent.
- Cash equivalent assets had a market value of $15.4 million. The sector's target allocation was 3 percent, and actual holdings stood at 2.2 percent.
- Alternative assets had a market value of $107.7 million. The sector did not have a target allocation, and actual holdings stood at 15.3 percent. The maximum permitted allocation to alternative assets stood at 20.0 percent at cost.

The total market value of BWF's investments decreased by $13.0 million, or 1.8 percent, from the end of the previous fiscal year. This decrease in assets was due mainly to weak returns for small capitalization U.S. equities during the year. BWF's total investment return before investment management fees for the fiscal year was +4.1 percent. The U.S. large capitalization equity sector returned +11.1 percent, the U.S. small capitalization equity sector had a -0.7 percent result, the international equity sector gained +5.2 percent for the fiscal year, and fixed income produced a +4.6 percent result.

As of August 31, 2016, BWF employed 15 marketable securities investment managers. In the U.S. large capitalization equity sector, the managers were Brown Advisory; LSV Asset Management; and Martingale Asset Management. WCM Investment Management and Numeric Investors managed U.S. small capitalization equities. Camden Asset Management; C.S. McKee; Rimrock Capital Management; Babson Capital; and Smith Breeden Associates were the fixed income managers. Capital Guardian Trust Company; Northern Cross; Johnston Asset Management; Acadian Asset Management; and Hansberger Growth Investors managed international equities. BWF also held investments in seven venture capital funds: Intersouth Partners IV, V and VI, Spray Venture Funds I and II, Mission Ventures II and A. M. Pappas Life Science Ventures II. Winston Partners managed a fund of equity oriented hedge funds. Blackrock Alternative Advisors managed a fund of absolute return strategies. Hamilton Lane Advisors managed two funds of private equity strategies and a private debt strategy. Finally, the Fund internally managed a diversified portfolio of mainly passive investments which was named the Tactical Portfolio. The Tactical Portfolio included investments in U.S. equities, international equities and global bonds.

STATEMENTS OF FINANCIAL POSITION

August 31, 2016 and 2015
(All dollar amounts presented in thousands)

	2016	2015
ASSETS		
Cash and cash equivalents	$ 20,304	$ 20,589
Investments	688,870	734,294
Accrued interest and dividends receivable	1,317	1,534
Other assets	75	63
Federal excise tax receivable	333	210
Property and equipment, net	8,050	8,378
Total assets	$ 718,949	$ 765,068
LIABILITIES AND NET ASSETS		
Transactions payable, net	$ 4,430	$ 40,377
Accounts payable and other liabilities	989	1,033
Deferred federal excise taxes	1,446	1,326
Unpaid awards	97,740	102,718
Total liabilities	104,605	145,454
Unrestricted net assets	614,344	619,614
Total liabilities and net assets	$ 718,949	$ 765,068

STATEMENTS OF ACTIVITIES

August 31, 2016 and 2015
(All dollar amounts presented in thousands)

	2016	2015
REVENUES		
Interest and dividends, less investment expenses of $3,219 and $3,559 in 2016 and 2015, respectively	$ 8,620	$ 8,970
Net realized gain on sale of investments	9,693	38,577
Total revenues and realized gains	$ 18,313	$ 47,547
EXPENSES		
Program services	$ 26,273	$ 50,917
Management and general	5,873	7,907
Total expenses before net unrealized appreciation (depreciation) of investments and deferred federal excise tax	32,146	58,824
Net unrealized appreciation (depreciation) of investments, net of provision for deferred federal excise tax expense/(benefit) of $120 and $(1,033) in 2016 and 2015, respectively	8,563	(53,142)
Change in net assets	(5,270)	(64,419)
Net assets at beginning of year	619,614	684,033
Net assets at end of year	$ 614,344	$ 619,614

Grants Index

BWF makes all grants to nonprofit organizations. For most of the programs, the name of the individual on whose behalf the grant is made is listed first, the title of the award recipient's project is listed second, and the name of the organization that received the money is listed third.

For programs that may have coaward recipients, the award recipients and their organizations are listed first, followed by the project title. For grants made directly to organizations and not on behalf of an individual, the name of the organization is listed first, followed by the title of the project or a brief description of the activity being supported.

In addition to making competitive awards, BWF makes noncompetitive grants—Ad Hocs—for activities that are closely related to our major focus areas. These grants are intended to enhance the general environment for research in the targeted areas.

For full audited financials visit bwfund.org/annualreport

PROGRAM SUMMARY

August 31, 2016

	Awarded Net of Cancelled	Amount Paid	Percentage of Total Paid
BIOMEDICAL SCIENCES			
Career Awards in the Biomedical Sciences	$ (95,000)	$ 601,560	
Career Awards in the Medical Sciences	8,435,465	7,549,646	
Research Travel Grant	350,093	340,093	
Ad Hoc	842,500	645,500	
Total	$ 9,533,058	$ 9,136,799	29.0%
DIVERSITY IN SCIENCE			
Postdoctoral Enrichment Program	$ 831,659	$ 691,659	
Ad Hoc	35,000	35,000	
Total	$ 866,659	$ 726,659	2.3%
INFECTIOUS DISEASES			
Career Guidance	$ 318,365	$ 282,199	
Investigators in Pathogenesis of Infectious Disease	5,210,254	3,961,439	
Ad Hoc	480,500	1,057,500	
Total	$ 6,009,119	$ 5,301,138	16.8%
INTERFACES IN SCIENCE			
Career Award at the Scientific Interface	$ 4,576,695	$ 4,716,695	
Interfaces Short Courses	–	200,000	
Ad Hoc	166,091	226,091	
Total	$ 4,742,786	$ 5,142,786	16.3%
POPULATION SCIENCES			
Institutional Program Unifying Population and Laboratory-Based Sciences	$ 150,000	$ 3,038,561	
Total	$ 150,000	$ 3,038,561	9.6%

PROGRAM SUMMARY

August 31, 2016

	Awarded Net of Cancelled	Amount Paid	Percentage of Total Paid
REGULATORY SCIENCE			
Innovation in Regulatory Science Awards	$ 2,300,000	$ 1,750,000	
Ad Hoc	137,500	137,500	
Total	$ 2,437,500	$ 1,887,500	6.0%
REPRODUCTIVE SCIENCES			
Preterm Birth Initiative	$ (300,000)	$ 1,725,000	
Total	$ (300,000)	$ 1,725,000	5.5%
SCIENCE AND PHILANTHROPY			
Ad Hoc	$ 285,700	$ 330,700	
Total	$ 285,700	$ 330,700	1.1%
SCIENCE EDUCATION			
Career Award for Science and Mathematics Teachers	$ 9,307	$ 464,307	
PRISM	205,698	205,698	
Student Science Enrichment Program	2,138,292	1,957,815	
Ad Hoc	352,500	1,509,097	
Total	$ 2,705,797	$ 4,136,918	13.1%
TRANSLATIONAL RESEARCH			
Clinical Scientist Award in Translational Research	$ 1,993	$ 114,493	
Total	$ 1,993	$ 114,493	0.4%
GRAND TOTAL	$26,432,612	$31,540,554	100%

Biomedical Sciences

CAREER AWARDS FOR MEDICAL SCIENTISTS

Jonathan Abraham, M.D., Ph.D.
Harvard Medical School
Profiling the human antibody response in survivors of viral hemorrhagic fevers

Heidi Leigh Cook-Andersen, M.D., Ph.D.
University of California-San Diego
Post-transcriptional gene regulation during the mammalian oocyte-to-embryo transition

Mariella Gruber Filbin, M.D., Ph.D.
Harvard Medical School
Discovering novel epigenetic dependencies in pediatric high-grade glioma

Andrew Michael Intlekofer, M.D., Ph.D.
Memorial Sloan-Kettering Cancer Center
Investigating L-2-hydroxyglutarate production and its relevance to normal hematopoiesis and leukemogenesis

Siddhartha Jaiswal, M.D., Ph.D.
Harvard Medical School
Elaborating the causal link between clonal hematopoiesis and atherosclerosis

Devanand Sadanand Manoli, M.D., Ph.D.
University of California-San Francisco
Genetic models of social attachment in development and mental illness

Alexander Marson, M.D., Ph.D.
University of California-San Francisco
Molecular characterization of non-coding genetic variants that promote human autoimmunity

Seth Rakoff-Nahoum, M.D., Ph.D.
Harvard Medical School
Gut microbiota ecological interaction networks in health and disease

Dhakshin Ramanathan, M.D., Ph.D.
University of California-San Francisco
Role of spindle oscillations in modulating neural plasticity and procedural memory consolidation

Tiffany Crawford Scharschmidt, M.D.
University of California-San Francisco
Elucidating mechanisms of immune tolerance to skin commensal bacteria

Alexander Spektor, M.D., Ph.D.
Harvard Medical School
The mechanism of DNA damage and chromothripsis from chromosome segregation errors

Bruce Mao Zheng Wang, M.D.
University of California-San Francisco
Wnt signaling and hepatocyte stem cells in liver homeostasis and cancer

COLLABORATIVE RESEARCH TRAVEL GRANT

Ishmail John Abdus-Saboor, Ph.D.
University of Pennsylvania

Mehreen Arshad, M.D.
Duke University

Giorgio A. Ascoli, Ph.D.
George Mason University

Alison L. Barth, Ph.D.
Carnegie Mellon University

Francois Berthiaume, Ph.D.
Rutgers, The State University of New Jersey

Wing-Yiu (James) Choy, Ph.D.
University of Western Ontario

Torin K. Clark, Ph.D.
University of Colorado-Boulder

Carolyn Y. Dadabay, Ph.D.
College of Idaho

Susan Daniel, Ph.D.
Cornell University

Igor Dikiy, Ph.D.
City University of New York

Constance Lynn Hall, Ph.D.
College of New Jersey

Stefanie Heyden, Ph.D.
California Institute of Technology

Vladimir Hlady, D.Sc.
University of Utah

Elizabeth Hua-Mei Kellogg, Ph.D.
University of California-Berkeley

Laura J. Knoll, Ph.D.
University of Wisconsin-Madison

Elbek K. Kurbanov, Ph.D.
University of California-San Diego

Edo L. Kussell, Ph.D.
New York University

Arthur D. Lander, M.D., Ph.D.
University of California-Irvine

Scott M. Landfear, Ph.D.
Oregon Health and Science University

Berlin L. Londono-Renteria, Ph.D.
University of South Carolina

Filippo Mancia, Ph.D.
Columbia University

Mark Mandel, Ph.D.
Northwestern University

Luis Martinez-Sobrido, Ph.D.
University of Rochester

Kristen Lynn Mills, Ph.D.
Rensselaer Polytechnic Institute

Toni Mueller, Ph.D.
University of Alabama-Birmingham

Debanjan Mukherjee, Ph.D.
University of California-Berkeley

Timothy Eugene O'Brien, Ph.D.
Loyola University Chicago

Christine A. Petersen, D.V.M., Ph.D.
University of Iowa

Shu-Bing Qian, Ph.D.
Cornell University

Alexandro D. Ramirez, Ph.D.
Weill Medical College of Cornell University

Iris V. Rivero, Ph.D.
Iowa State University

Matthew Louis Robinson, M.D.
Johns Hopkins University School of Medicine

John Roy Rohde, Ph.D.
Dalhousie University

Campbell Rolian, Ph.D.
University of Calgary

Thomas F. Scherr, Ph.D.
Vanderbilt University

Janna Schurer, Ph.D.
University of Saskatchewan

Stephen Secor, Ph.D.
University of Alabama-Tuscaloosa

Jessica Seeliger, Ph.D.
State University of New York-Stony Brook

Nikolaos Sgourakis, Ph.D.
University of California-Santa Cruz

Carrie L. Shaffer, Ph.D.
Vanderbilt University

Krishna P. Sigdel, Ph.D.
University of Missouri-Columbia

Zachary James Storms, D.Phil.
University of Alberta

J. Brice Weinberg, M.D.
Duke University

Brady Thomas Worrell, Ph.D.
University of Colorado-Boulder

Traver Wright, Ph.D.
University of Texas Medical Branch-Galveston

Ahmet Yildiz, Ph.D.
University of California-Berkeley

Dou Yu, M.D., Ph.D.
Northwestern University

Hong Zhang, M.D., Ph.D.
University of Pittsburgh

Karen M. Zito, Ph.D.
University of California-Davis

Diversity in Science

POSTDOCTORAL ENRICHMENT PROGRAM

Kyle Daniels, Ph.D.
University of California-San Francisco
Using Synthetic Receptors to Map the T Cell Development Landscape

Antonia Dominguez, Ph.D.
Stanford University
Functional analysis of C9orf72 mutations in ALS via targeted genome engineering

Simmie Foster, M.D., Ph.D.
Harvard Medical School
Neuroimmune interactions in inflammatory pain

Walter Gonzalez, Ph.D.
California Institute of Technology
Neuronal Dynamics and Behavioral Robustness in Motor Control

Nydiaris Hernandez-Santos, Ph.D.
University of Wisconsin-Madison
Role of airway epithelial cells in host defense against pulmonary fungal pathogens

Samantha Lewis, Ph.D.
University of California-Davis
Functional dissection of the mitochondrial DNA nucleoid complex

Hiruy Meharena, Ph.D.
Massachusetts Institute of Technology
Deciphering the Role of Eukaryotic Protein Kinases in Down's Syndrome

Nicholas Ryan Meyerson, Ph.D.
University of Colorado-Boulder
Rules of engagement between TRIM restriction factors and their viral targets

Diana Monsivais, Ph.D.
Baylor College of Medicine
SMAD1/5 signaling in the female reproductive tract

Anthony Olarerin-George, Ph.D.
Weill Cornell Medical College
Characterizing the transcriptome-wide location and function of 8oxoG

Jihan Khara Osborne, Ph.D.
Harvard Medical School
Investigation of the role of the Lin28 paralogs during lung branching morphogenesis

Edwin Reyes, Ph.D.
Harvard Medical School
The Contribution of CD8+ Treg to Anti-Tumor Immunity

Jose Bernardo Saenz, M.D., Ph.D.
Washington University School of Medicine
Exploring the early events in Helicobacter pylori-induced gastric unit reorganization

Max Villa, Ph.D.
Duke University
A high throughput platform for screening microbial interactions

Carolyn Yrigollen, Ph.D.
University of Pennsylvania
Modeling the FMR1 trinucleotide repeat in zebrafish for gene editing

Career Guidance

CAREER GUIDANCE FOR TRAINEES

Association of University Technology Managers
The Technology Transfer Professional Training Program

Keck Graduate Institute of Applied Life Sciences
A Certificate in Bioscience Management for Life Scientists

Medical College of Wisconsin
Designing an educator pathway for postdocs employed at a medical and biomedical graduate school

Medical University of South Carolina
Offering an Entrepreneurship Course to Trainees in the Biomedical Sciences

Rutgers University
Providing biomedical Ph.D. students with advanced communication skills for career transitions

Simmons College
STEM Teaching Institute: Preparing Postdoctoral Fellows for Faculty Careers in Undergraduate STEM Disciplines

University of California-San Francisco
Interactive Simulation Exercises for Career Transitions (Inter-SECT)

Infectious Diseases

INVESTIGATORS IN THE PATHOGENESIS OF INFECTIOUS DISEASE

Jörn Coers, D.Phil., Ph.D.
Duke University
Host-mediated lysis of cytoplasmic pathogens

Min Dong, Ph.D.
Harvard Medical School
Host factors conferring susceptibility to Clostridium difficile toxins

Christine M. Dunham, Ph.D.
Emory University School of Medicine
Characterization of pathways involved in bacterial persistence and antibiotic resistence

Nels C. Elde, Ph.D.
University of Utah
A new class of retrogenes modulating pathogenesis

Scott E. Hensley, Ph.D.
University of Pennsylvania
Effect of maternal antibodies on the neonatal immune response to influenza virus

Audrey R. Odom, M.D., Ph.D.
Washington University
Insights into the chemical ecology of malaria parasites

Alexander Ploss, Ph.D.
Princeton University
Breaking species barriers of human hepatotropic pathogens

Amariliz Rivera, Ph.D.
Rutgers University-Rutgers Biomedical and Health Sciences-New Jersey Medical School
Mechanisms of bidirectional innate cell licensing in antifungal immunity

Sunny Shin, Ph.D.
University of Pennsylvania Perelman School of Medicine
Overcoming pathogen-mediated translation inhibition to enable robust immune defense

Joseph C. Sun, Ph.D.
Memorial Sloan-Kettering Cancer Center
Natural killer cell control of cytomegalovirus infection

Interfaces in Science

CAREER AWARDS AT THE SCIENTIFIC INTERFACE

Ahmet F. Coskun, Ph.D.
California Institute of Technology
Computational single molecule imaging and barcoding: Exploring cellular identity at the single cell transcript level

Alexander G. Huth, Ph.D.
University of California-Berkeley
Comprehensive functional mapping of human cortex using generative models

Ashley Laughney Bakhoum, Ph.D.
Sloan-Kettering Institute
Uncovering transcriptional vulnerabilities in latent metastasis

Michael J. Mitchell, Ph.D.
Massachusetts Institute of Technology
High-throughput *in vivo* nucleic acid delivery screening via molecular barcoding of nanoparticles for bone marrow-related diseases

Arthur Prindle, Ph.D.
University of California-San Diego
Electrical signaling and multicellular organization

Adrianne Marie Rosales, Ph.D.
University of Colorado-Boulder
Dynamic viscoelastic hydrogels to study mechanisms of fibrosis

David M. Schneider, Ph.D.
Duke University
Neural circuits for making predictions and learning from mistakes

Amy Wesolowski, Ph.D.
Princeton University
Impact of human travel on infectious disease dynamics

Jing Yan, Ph.D.
Princeton University
Resolving and analyzing living bacterial biofilms at the single cell level

Weijian Yang, Ph.D.
Columbia University
Holographic mapping and manipulation of neuronal microcircuits

Science Education

STUDENT SCIENCE ENRICHMENT PROGRAM

Association for the Preservation of the Eno River Valley
iWalk the Eno Science & Nature Camp and Eno Summer Science Academy, a Year-Round Learning Experience

Aurora Fossil Museum Foundation
IMAGINE-NC: Integrating Mathematics and Geology In Eastern North Carolina

Charlotte/Mecklenburg Schools
Enriching and Enhancing Hands-On Science at Title 1 Schools With Camp Invention

Elizabeth City State University
College and Career Pathways to Aerospace/ Aviation through Authentic and Experiential STEM Learning Activities

Elon University
Wildlife Studies: Critical Carnivores

Foundation of the Carolinas
The Summer Science Experience – Sixth Grade Science Sleuths and Ten80 PLUS

Friends of the North Carolina State Museum of Natural Sciences
Teen Science Cafes

Lenoir County Public Schools
Lenoir County Public Schools STEM Summer Camp

Mount Airy City Schools
RCR Future Drivers

North Carolina State University
GAPS (Geospatial Analytics for Problem Solving) for Hi-Tech Teens
GAPS (Geospatial Applications for Problem Solving) for Hi-Tech Teens

North Carolina State University
RAIN (Raising Achievement through Inquiry and Networking) Across the River

Orange County Schools
Engineering Matters

Rowan-Salisbury Schools
The BRIDGE (Building Research Investigators Doing Growth Experiences) program of Rowan Salisbury Schools

PROMOTING INNOVATION IN SCIENCE AND MATHEMATICS

James Autry
Benjamin J. Martin Elementary School
Improving Number Sense with Scientific Measurement Tools

Jessica Bachar
Isaac Dickson Elementary School
Experiencing Math: Hands-On Work With Title 1

Heather Best
Rosewood Elementary
Wonder Workshop – Developing Students' Coding Literacy with Dash and Dot

Matthew Brady
Parkland Magnet High School
The Physics of Ziplines

Betsy Bryan
Cabarrus/Kannapolis Early College High School
It Only Takes a SPRK to Get the Ball Rolling

William Burgess
Wake STEM Early College High School
Classroom Telescope and Accessories

Jennifer Carson
Grady A. Brown Elementary School
Outdoor Inquiry Based Science at Grady A. Brown Elementary

Jason Carter
Evergreen Community Charter School
Campus Learning Lab Phenology Project

Kate Culbreth
W.M. Irvin Elementary School
Energy Engineers

Ashley Cullipher
Bear Grass Charter School
Fluttering Through STEM

Laurel Currie
Nash-Rocky Mount Early College High School
Improving Math and Science Literacy through the Maker Movement

Jennifer Cypra
Grady A. Brown Elementary School
MakerSpace

Debra Diegmann
Harrisburg Elementary School
Plant & Soil Investigations

Catherine East
B. Everett Jordan Elementary School
Incorporation of the mathematical learning tool, Digi-Blocks, in instruction to improve mathematical comprehension

Angela Elsbree
DF Walker Elementary
Observe, Draw, Write!

Jennifer Evans
Cape Fear High School
The Research Class

Debra Gallagher
Harold Winkler Middle School
Understanding Weather, Climate and Air Quality

Christy Gandy
North Johnston High School
There is a Better Way to Collect Data

Linnea Gibson
Conn Active Learning & Technology Magnet Elementary School
Elementary Entrepreneurial Design

William Gibson
Shady Brook Elementary School
Beyond the Screen; Mathematical Creations and Application using the iPad, but with real, physical manipulates and exploration

Andrea Gladden
Icard Elementary School
What's in a Drop of Water?

Karen Glover
Forrest W. Hunt Elementary
Forrest W. Hunt Star MakerSpace Lab

Matthew Gnau
Greene County Middle School
Middle School STEM Robotics club

Heather Harley
Ben D. Quinn Elementary School
City Planners and Civil Engineers: Bridging the Gap

Stephanie Harrell
Contentnea-Savannah STEM School
Think It, Design It, Print It

Renee Hensley
Marion Elementary
Sphero Robotic Challenge

Wendy Hildebran
Startown Elementary School
STEM Makerspace Lab

Terry Howerton
Atkins Academic & Technology High School
Bringing Gene Cloning into the Classroom

Clifton Hudson
South Creek Middle School
No Child Left UnSTEMulated

Susan Jackson
Hot Springs Elementary School
We Do STEM

Tameka Jackson
River Road Middle School
STEMulating Minds in Robotics

Matthew Kinnaird
Alonzo Carlton Reynolds High School
Radio Jove Astronomy

Valerie Kinney
Cleveland Middle School
Coding Robotics

Vance Kite
City of Medicine Academy
Professional-Grade Labs

Richard Kozak
Southern Middle School
360 Degree Math Classrooms

Shannon LaBrecque
Joe P. Eblen Intermediate School
Micro-climates in the Mountains

Jeffrey LaCosse
Charles E. Jordan High School
Applied Science, Mathematics and Engineering

Kimberly Lang
Mulberry Elementary School
Promoting Inquiry Based Science Investigations

Jennifer LeBlanc
West Wilkes High School
Integrating Computer Science Tools in Math Class for Data Collection and Modeling

Kevin Lloyd
Charles E. Jordan High School
LabQuest

Keenan Locklear
Robeson Early College High School
KITS-Kids Inspired Through Science

Kim Lowman
West Alexander Middle School
Making a Media Makerspace

Larissa Lupton
Pender High School
Transforming Biology into Hands-On Activities in Genetics and Microbiology

Brad Mauro
Boone Trail Elementary School
Beyond the Naked Eye

Edie McDowell
The Franklin School of Innovation
WATER IS LIFE: WQI of Hominy Creek on the Franklin School of Innovation Campus

James Melnyk
Greene Early College High School
Probeware for Hands-On Learning in Earth-Environmental Science, Biology, and Physics

Lisa Mixon
Morton Elementary
Morton Master Builders

Adrienne Murchland
J.J. Jones Intermediate School
MakerSpace, STEAM & PBL – Inquiry Based Learning at its Finest

Kim Parsons
Millers Creek Elementary School
Stemming Up

Gabrielle Patrick
Sandy Grove Middle School
Using Gel Electrophoresis to Explore Real-World Applications of Biotechnology

Carla Pesce
Colerain Elementary School
Exploring the Weather – Fifth and Second graders working together to better understand the weather as directed by NC Essential Standards

Jared Pinkston
Pender High School
3d Printing and product design

Matthew Poston
Walkertown Middle School
Crime Scene DNA Fingerprinting: Who did it?

Brian Rada
Charles B Aycock High School
Investigating Concentration with Beers' Law

Melaine Rickard
Western Middle School
Engineering an Academic Makerspace

Ellen Salley
E. A. Laney High School
Laney STEM: GO for it!

Mary Sapp
East Yancey Middle School
Light Up Life – Macro to Micro

Mark Schaap
Creswell High School
Robotics and engineering

Jeremy Shaw
Greene County Middle School
Applying Math and Science Skills to Coding and Programming with Sphero

Ashley Silva
Alexander Wilson Elementary
3D Printing: Bringing Innovation to Life!

Victoria Sondecker
JF Webb High School of Health and Life Sciences
Weather Warriors

Sue Speed
Rodgers Elementary
Our Future is STEM!

Donna Strader
Wentworth Elementary School
Science Matters

Jennifer Thach
DF Walker Elementary
Models Mean More

Polly Westfall
Union Elementary School
A Mighty Math Olympics

Natalie Whitney
Brentwood Magnet Elementary School of Engineering
The Internet of "Things"

Marcy Wurtele
Tommy's Road Elementary
"Reaping What We Sow"

Mary Rose Yoo
Charles B Aycock High School
Advanced Inquiry Labs for AP Physics 1

Ad Hoc

BIOMEDICAL SCIENCES

Career Development of Postdoctoral Scientists

American Society for Cell Biology
Support for the Minorities Affairs Committee (MAC) and Women in Cell Biology (WICB) activities at the annual meeting

Gordon Research Conferences
Support for the GRC on Protein Transport Across Cell Membranes

Keystone Symposia
Support for underrepresented early career scientist travel award and fellows program

Society for Neuroscience
Support for trainee professional development awards to the Society of Neuroscience's annual meeting

Medical Sciences

American Foundation for Suicide Prevention
Support for AFSP's mission to save lives and bring hope to those affected by suicide in lieu of honorarium for CAMS advisory committee member Sarah H. Lisanby, M.D.

American Physician Scientists Association
Support for the APSA annual meeting

Association for Clinical and Translational Science
Support for trainee travel to the 2016 Translational Science meeting

Baylor College of Medicine
Support for the Alexander R. Matzuk 2016-2017 speaker series in lieu of honorarium for CAMS advisory member Martin M. Matzuk, M.D., Ph.D.

Chordoma Foundation
Support for the fifth International Chordoma Research Workshop

Tides Foundation
Support for the Gairdner 2016 National Program in Canada

University of North Carolina-Chapel Hill Lineberger Comprehensive Cancer Center
Support for the 40th Annual UNC Lineberger Comprehensive Cancer Center Symposium: Molecularly Targeted Cancer Therapies from Bench to Bedside

University of Toronto Faculty of Medicine
Support for the 2015 annual general meeting of CITAC and CSCI

Reproductive Science

Gordon Research Conferences
Support for the 2016 Meiosis Gordon Research Seminar and Conference, Colby-Sawyer College

Gordon Research Conferences
Support for the 2016 Gordon Research Conference on Regulatory Processes Modulating Mammalian Reproduction

Marine Biological Laboratory
Support for the 2016-2018 sessions of the Frontiers in Reproduction course

Society for Reproductive Investigation
Support for the 63rd annual scientific meeting

Society for the Study of Reproduction
Support for travel fellowships and diversity committee

Society for the Study of Reproduction
Support for SSR's Science Education Outreach Day for middle and high school students

Washington University
Support for the annual RSDP scholar retreat and scholars dinner

Washington University
Support for a lab management course for the Reproductive Scientist Development Program

DIVERSITY IN SCIENCE

Duke University
Duke BioCoRE Annual Symposium – "Bi-Directional Mentoring"

University of California-Santa Cruz Foundation
Support for diversity and activities within the Department of Molecular, Cellular, and Developmental Biology which may contribute to an excellent and inclusive workforce, in lieu of honorarium for Dr. Cliff Poodry

University of North Carolina-Chapel Hill
Chancellor's Science Scholars BW Fund Undergraduate Research Fellowships

INFECTIOUS DISEASES

Career Development

American Society for Microbiology
Support for the American Society for Microbiology (ASM) Kadner Institute and the ASM Scientific Writing and Publishing Institute

Children's Science Center
Support for the Children's Science Center in Herndon, Virginia in lieu of honorarium to Dr. Maryrose Franko

Medical University of South Carolina
Support for the 3rd Annual Symposium for Advocates of Women Physician Scientists held at the Medical University of South Carolina

National Academy of Sciences
Support for a two-year grant to study current and future needs for graduate-level education at the masters and Ph.D. levels in science, technology, engineering, and mathematics (STEM) in the United States

University of New Brunswick
Support for the Canadian Association of Postdoctoral Administrators (CAPA/ACAP) annual conference

University of Western Ontario
Support to hire a writer to work full time with the Canadian Association for Postdoctoral Scholars (CAPS) over four months in order to develop a high quality final report for the data collected in a 2016 National Survey of postdoctoral fellows

General

American Society for Microbiology
Support for the 2016 American Society for Microbiology Conference on Salmonella

American Society for Microbiology
Support for the American Society for Microbiology's 13th Conference on Candida

American Society for Microbiology
Support for the sixth American Society for Microbiology Conference on Beneficial Microbes

American Society of Tropical Medicine and Hygiene
Support for the American Committee of Molecular, Cellular and Immunoparasitolgy's scientific program

American Society of Tropical Medicine and Hygiene
Support for annual meeting

Association for Women in Science
Support for renewal of Burroughs Wellcome Fund's Association for Women in Science partnership dues for 2016

Biomedical Research Institute
Support for The Symposium for International Research and Innovations in Schistosomiasis (SIRIS)

Boston Children's Hospital Trust
Support for TBResist a consortium housed at Boston Children's Hospital in the laboratory of Dr. Gil Alterovitz primarily in the analysis of the TBResist aggregated database

Boston University School of Medicine
Support for the National Emerging Infectious Diseases Laboratories (NEIDL) symposium "Emerging Infectious Diseases from A to Z: Emerging Challenges and Opportunities"

Cornell University College of Veterinary Medicine
Support for the expenses associated with organizing the Burroughs Wellcome Fund "Becoming Faculty" workshop

Genetics Society of America
Support for The Allied Genetics Conference (TAGC) July 13-17, 2016 at the Orlando World Center Marriott in Orlando Florida

Gordon Research Conferences
Support for the 2016 Host-Parasite Interactions Gordon

Gordon Research Conferences
Support for the Gordon Research Conference "Microbial Pathogenesis: Mechanisms of Infectious Disease and its companion Gordon Research Seminar "Defining Pathogenesis and the Host-Microbe Dynamic"

Gordon Research Conferences
Support for the 2016 Gordon Research Conference on Drug Resistance

Grants Managers Network
Support for the Grants Managers Network (GMN); the nationwide affinity group for grants managers, providing members with valuable opportunities for professional development

Harvard Medical School
Support for travel to the "Bacterial Protein Secretion" conference

Harvard Medical School
Support for travel to the "Bacterial Protein Secretion"

Icahn School of Medicine at Mount Sinai
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Jesse Bloom, Ph.D., to present a seminar at the Icahn School of Medicine

Iowa State University
Support for the biannual symposia: Anthelmintics-From Discovery to Resistance

Marine Biological Laboratory
Support for a one day symposium to celebrate the 20th Molecular Mycology course

Memorial Sloan-Kettering Cancer Center
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease awardee, Dr. Sing Sing Way, to present a seminar

New York University School of Medicine
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease awardee, Denise Monack, to present a seminar

New York University School of Medicine
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Dr. Eric Skaar, to present a seminar at New York University

New York University School of Medicine
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Kim Orth, to present a seminar at New York University

Ohio State University College of Veterinary Medicine
Support for the Burroughs Wellcome Fund "Becoming Faculty: a short course on launching a scientific career" held in conjunction with the 27th Merial-NIH Veterinary Scholars Symposium

Ohio State University College of Veterinary Medicine
Support for the 2016 Merial-NIH National Veterinary Scholar Symposium

Princeton University
Support for travel to the "Bacterial Protein Secretion" conference

Scripps Research Institute
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Dr. Sean Whelan of Harvard Medical School, to present a seminar

Stanford University
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease awardee, Dr. Vanessa Sperandio, to present a seminar

Stanford University
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Awardee, Dr. Anna Bakardjiev, to present a seminar

Stanford University
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Awardee, Dr. Julie Blander, to present a seminar

Stanford University Medical Center
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Awardee, Dr. John MacMicking, to present a seminar

Stanford University School of Medicine
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Awardee, Dr. Sara Cherry, to present a seminar

Tufts University
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease awardee, Dan Stetson, Ph.D., to present a seminar

Tufts University School of Medicine
Support for Investigator in the Pathogenesis of Infectious Disease advisory committee member, Margaret Kielian, Ph.D., to present a seminar

University of British Columbia
Support for travel to the "Bacterial Protein Secretion" conference

University of California-Berkeley
Support for the BWF/HHMI partnership veterinary student training program fellow Rebekah Packer

University of California-Irvine
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease awardee, Juliane Bubeck-Wardenburg, to present a seminar

University of California-San Diego
Support for the renewal of funding for the Helminth Parasite Molecular Toolbox travel awards for 2016-2017

University of California-San Francisco
Support for the Bay Area Microbial Pathogenesis Symposium XIX

University of Colorado Denver, Anschutz Medical Campus
Support for the 2016 Molecular and Cellular Biology of Helminth Parasites Conference

University of Massachusetts
Support for New Investigator in Molecular Parasitology, Eric Pearlman, Ph.D., to present a seminar

University of Minnesota
Support for the Second European Molecular Biology Organization Workshop on AIDS-related Mycoses

University of Nebraska Medical Center
Support for the 6th Annual International Conference on Gram-Positive Pathogens (ICGPP)

University of North Carolina-Chapel Hill
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Awardee, Dr. Carolyn Coyne, to present a seminar

University of North Carolina-Chapel Hill
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Awardee, Dr. Kelly Doran, to present a seminar

University of North Carolina-Chapel Hill
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Awardee, Dr. Ren Sun, to present a seminar

University of North Carolina-Chapel Hill
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease Awardee, Dr. Eric Skaar, to present a seminar

University of Pennsylvania
Support for the 20th annual Woods Hole Immunoparasitology (WHIP) Meeting

University of Pennsylvania School of Veterinary Medicine
Support for the BWF/HHMI partnership veterinary student training program fellow Megan Clark

University of Texas Southwestern Medical Center-Dallas
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease awardee, Emily Troemel, to present a seminar

University of Texas Southwestern Medical Center-Dallas
Support for Dr. Eric Skaar to present a seminar at the University of Texas Southwestern Medical Center-Dallas during the 2016/2017 seminar series

University of Texas Southwestern Medical Center-Dallas
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Blossom Damania, Ph.D., to present a seminar

University of Texas Southwestern Medical Center-Dallas
Support for Investigator of Pathogenesis of Infectious Disease awardee, Manuela Raffatellu, MD., to present a seminar

University of Texas-Austin
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease awardee, Dr. Ben tenOever, to present a seminar

Vanderbilt University
Support for Investigator in the Pathogenesis of Infectious Disease awardee, David Weiss, to present a seminar

Vanderbilt University
Support for the biennial Congress of the Anaerobe Society of the Americas (ASA), ANAEROBE 2016 Congress

Vanderbilt University Medical Center
Support for Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease awardee, Dr. Anna Bakardjiev, to present a seminar

Yale University
Support for travel to the "Bacterial Protein Secretion" conference

INTERFACES IN SCIENCE

American Society for Cell Biology
Support for the Special Interest Subgroup Sessions at the 2015 American Society for Cell Biology meeting

Biophysical Society
Support for the Biophysical Society's 2016 Annual Meeting in Los Angeles, February 27-March 2, 2016 covering costs for the "Future of Biophysics Burroughs Wellcome Fund Symposium" and two breakfasts hosted by the Early Careers Committee

Duke University
Support for the Statistical and Applied Mathematical Institute's (SAMSI) 2016 Workshop: Methodology for Precision Medicine: Integrating Statistical and Mathematical Approaches

Duke University
Support for the Triangle Center for Evolutionary Medicine's Annual Meeting of the International Society for Evolution, Medicine and Public Health

Georgia Institute of Technology
Support for a summer workshop at the interface of statistical physics, microbial ecology, cellular physiology and networks

Georgia Tech Research Corporation
Support for reception for speakers and co-authors in the "Robophysics: Physics Meets Robotics" sessions at the American Physical Society meeting

Marine Biological Laboratory
Support of the 2016 Physiology Course Alumni Fund and 2016 Course Director's Discretionary Fund

New York Stem Cell Foundation
Support for an internship for an African American college student who will participate in the 10-week internship program, New York Stem Cell Foundation Laboratory

Regents of the University of Colorado
Support for a conference on mathematical neuroscience in 2017 to cover expenses for an invited speaker and student expenses

University of Washington
Support for the UW-Allen Institute Research Symposia in Theoretical Neuroscience

Washington University School of Medicine
Support for a workshop entitled "The 2016 Workshop on Kinetics and Markov State Models (MSMs) in Drug Design"

World Molecular Imaging Society
Support for the Synthetic Biology and Reporter Genes (SyBRG) Interest Group Meeting at the World Molecular Imaging Society

REGULATORY SCIENCE

Regulatory Science

Arkansas Research Alliance
Annual meeting of the Global Coalition for Regulatory Science Research

Everylife Foundation for Rare Diseases
Support for Everylife Foundation for Rare Diseases' 7th annual Rare Disease Scientific Workshop

Everylife Foundation for Rare Diseases
Support for Everylife Foundation for Rare Diseases' 2016 Scientific Workshop

Health Research Alliance, Inc.
Support for 2016 HRA membership

International Society for Stem Cell Research
Support for the plenary session "Cell Therapy in Clinical Trials" at the International Society for Stem Cell Research 2016 Annual Meeting

Montana State University
Support for the Center for Biofilm Engineering's third annual meeting on biofilm technologies "Anti-biofilm techonologies: Pathways to Product Development"

National Academy of Sciences/Institute of Medicine
Support for the National Academies of Sciences' Forum on Regenerative Medicine

National Academy of Sciences/Institute of Medicine
Support for the Forum on Drug Discovery, Development, and Translation

National Coalition Against Domestic Violence
Gift on behalf of a Burroughs Wellcome Fund Advisory Committee Member

Society of Toxicology
Support for the miRNA Biomarkers for Toxicology Workshop at the Society of Toxicology Annual Meeting

SCIENCE AND PHILANTHROPY

Communications/Science Writing

Council for the Advancement of Science Writing
Support for the World Conference of Science Journalists Planning and Program Development

Food and Environment Reporting Network
Gastropod Coverage of Biomedical Research

Open Notebook
TON/BWF Fellowship for Early-Career Science Journalists

Science Spark
Support the presence of SciStarter at live events across the U.S.

The Story Collider
Workshop Development: The Art and Science of Storytelling for Science Communication

General Philanthropy

Council on Foundations
General support

Foundation Center
General support for 2015-16

Health Research Alliance
Support for the gHRAsp database

Marine Biological Laboratory
Support for the Pamela Clapp Hinkle Community Fund

North Carolina Community Foundation/ North Carolina Network of Grantmakers
Support for 2016-17

Queen's University
Support for the publication of the proceedings of the Conferences on Statistics, Science and Public Policy

Stanford University
Support for Bio-X for the summer of 2016 undergraduate fellowship program

Science Policy

Massachusetts Institute of Technology
Support for the project Advancing Health Outcomes through Convergence

SCIENCE EDUCATION

General Education Grant

Grantmakers for Education
Support for 2016-17

Greene County Schools
Real World Youth Leadership Empowerment Strategies

North Carolina Society of Hispanic Professionals
Support for the annual Hispanic Education Summit

Science Education

Daniel Center for Math and Science
Support for STEM programming

Morehead Planetarium and Science Center
Support for the 2016 Science Festival

Mount Olive College
STEM on Green

National Association of Academies of Science
Support for the Breakfast with Scientists

National Girls Collaborative
Support for the Connectory

North Carolina Association for Biomedical Research
Bridging the Gap: Uniting North Carolina K-16 STEM Education

North Carolina Department of Public Instruction
Support for the STEM Recognition Program

North Carolina Science Fair Foundation
North Carolina Science and Engineering Fair 2016

North Carolina Science Teachers Association
Support for the NCSTA Professional Development Institute

University of North Carolina-Chapel Hill
North Carolina DNA Day 2016

University of North Carolina-Chapel Hill School of Education
Continued support for the CASMT Evaluation

Western Piedmont Council of Governments
STEM West

Science, Math, and Technology Science Champion

BattelleEd ORG
Support for the North Carolina STEMx Membership for 2016-17

Isothermal Community College
The Isothermal STEM Summit 2015 Part 2: The STEM Scorecard and Developing a Regional STEM Hub

James B. Hunt Jr. Institute for Educational Leadership and Policy Foundation
STEM College and Career Readiness Standards and Assessments

Meredith College
Support for the Mathematics Leadership Institute to Support Teaching and Learning

North Carolina Chamber Foundation
North Carolina Chamber Conference on Education

North Carolina New Schools Project
Support for the annual Scaling STEM conference

North Carolina Science Leadership Association
Support for the NCSLA Science Leadership Fellows Program for 2016 and 2017

North Carolinas Northeast Economic Development Foundation
Eastern North Carolina Employers & Superintendents Planning Event

Professional Engineers of North Carolina Education Foundation
Support for the North Carolina Future City Competition

Public School Forum of North Carolina
Support for the North Carolina International Science Challenge

Southeast Education Alliance Foundation, Inc.
Support for the Second Annual STEM Education Conference

SPECIAL AWARD

Friends of Sir M.B. Davis Jewish General Hospital
Support for the Distinguished Lecture Series

Marine Biological Laboratory
Support for the Biology of Parasitism Couse

Strategic Education Research Partnership Institute
General support

Advisory Committees

The Burroughs Wellcome Fund uses advisory committees for each competitive award program to review grant applications and make recommendations to BWF's Board of Directors, which makes the final decisions. We select members of these committees for their scientific and educational expertise in the program areas. In addition, BWF uses a financial advisory committee to help in developing and reviewing the BWF's investment policies. This committee is appointed by and reports to the Board of Directors.

BIOMEDICAL SCIENCES

Career Awards for Medical Scientists

Derek Abbott, M.D., Ph.D.
Arline H. and Curtis F. Gavin Professor of Medicine
Department of Pathology
Case Western Reserve University

Jack Antel, M.D.
Professor of Neurology and Neurosurgery
McGill University

Leslie J. Berg, Ph.D.
Professor, Department of Pathology
University of Massachusetts Medical School

Paul Buckmaster, D.V.M., Ph.D.
Professor
Dept. of Comparative Medicine
Stanford University

Kathleen Caron, Ph.D. (Co-Chair)
Professor of Cell Biology & Physiology and Genetics
Chair, Dept. of Cell Biology & Physiology
University of North Carolina-Chapel Hill

Aravinda Chakravarti, Ph.D.
Director, Center for Complex Disease Genomics
McKusick – Nathans Institute of Genetic Medicine
Johns Hopkins University School of Medicine

Tamara L. Doering, M.D., Ph.D.
Professor, Dept. of Molecular Microbiology
Washington University School of Medicine

H. Shelton Earp, III, M.D.
Professor and Director,
Lineberger Comprehensive Cancer Center
University of North Carolina-Chapel Hill School of Medicine

Seth Field, M.D., Ph.D.
Professor of Medicine,
Division of Endocrinology and Metabolism
University of California-San Diego

Sarah H. Lisanby, M.D.
Director, Division of Translational Research
Director, Noninvasive Neuromodulation Unit,
Experimental Therapeutics and
Pathophysiology Branch
National Institute of Mental Health

Martin M. Matzuk, M.D., Ph.D.
Stuart A. Wallace Chair and Professor
Dept. of Pathology and Molecular & Cellular Biology
Baylor College of Medicine

Elizabeth McNally, M.D., Ph.D. (Co-Chair)
Elizabeth J. Ward Chair and Director,
Center for Genetic Medicine
Northwestern University Feinberg School of Medicine

Heather C. Mefford, M.D., Ph.D.
Associate Professor, Pediatrics
Division of Genetic Medicine
University of Washington

Upinder Singh, M.D.
Division Chief, Infectious Diseases and Geographic Medicine
Associate Professor, Depts. of Internal Medicine, Microbiology and Immunology
Stanford University School of Medicine

John York, Ph.D.
Natalie Overall Warren Professor and Chair
Dept. of Biochemistry
Vanderbilt University Medical Center

Collaborative Research Travel Grants

Matthew Redinbo, Ph.D.
Professor and Chair, Department of Chemistry
University of North Carolina at Chapel Hill

Keith Weninger, Ph.D.
Associate Professor, Department of Physics
North Carolina State University

John York, Ph.D.
Natalie Overall Warren Professor and Chair
Dept. of Biochemistry
Vanderbilt University Medical Center

DIVERSITY IN SCIENCE

Postdoctoral Enrichment Program

Jerry L. Bryant, Ph.D.
Former Director, Science Education Initiatives
United Negro College Fund

Kami Kim, M.D.
Professor
Albert Einstein College of Medicine

George M. Langford, Ph.D.
Professor of Biology
Dean Emeritus of the College of Arts and Sciences
Syracuse University

Lee Limbird, Ph.D.
Professor of Biochemistry,
Department of Life and Physical Sciences
Dean, School of Natural Sciences,
Mathematics, and Business
Fisk University

Carla Mattos, Ph.D.
Professor
Northeastern University

Clifton A. Poodry, Ph.D.
Senior Fellow, Science Education
Howard Hughes Medical Institute

Michael Summers, Ph.D. (Chair)
HHMI Investigator Professor of Chemistry and Biochemistry
University of Maryland, Baltimore County

INFECTIOUS DISEASES

Investigators in the Pathogenesis of Infectious Disease

JoAnne L. Flynn, Ph.D.
Professor of Microbiology and Molecular Genetics
University of Pittsburgh School of Medicine

Daniel E. Goldberg, M.D., Ph.D.
Professor of Medicine and Co-chief,
Division of Infectious Diseases
Washington University School of Medicine

Akiko Iwasaki, Ph.D.
HHMI Investigator
Professor of Immunobiology, and Molecular,
Cellular & Developmental Biology
Yale University School of Medicine

Aron Lukacher, M.D., Ph.D.
Professor of Microbiology and Immunology
Penn State College of Medicine

Harmit S. Malik, Ph.D.
Member, Division of Basic Sciences &
HHMI Investigator
Fred Hutchinson Cancer Research Center

Aaron P. Mitchell, Ph.D.
Professor of Biological Sciences
Carnegie Mellon University

Robert S. Munford, M.D.
Senior Clinician and Deputy Director
Laboratory of Clinical Infectious Diseases
National Institute of Allergy and Infectious
Diseases (NIAID)

Julie Overbaugh, Ph.D. (Chair)
Member: Human Biology Division
Member: Public Health Sciences Division
Fred Hutchinson Cancer Research Center

Barbara Papadopoulou, B.Pharm, Ph.D., FCAHS
Professor of Microbiology and Director,
Division of Infectious Diseases and Immunity
CHU de Quebec Research Center
Laval University School of Medicine

Vanessa Sperandio, Ph.D.
Professor of Microbiology and Biochemistry
U.T. Southwestern Medical Center

E. John Wherry, Ph.D.
Professor of Microbiology and
Director, Institute of Immunology
University of Pennsylvania Perelman School
of Medicine

INTERFACES IN SCIENCE

Career Awards at the Scientific Interface

Russ Altman, M.D., Ph.D.
Professor of Bioengineering, Genetics
and Medicine
Director, Program in Biomedical Informatics
Stanford University

Adrienne L. Fairhall, Ph.D.
Associate Professor
University of Washington
Dept. of Physiology and Biophysics

Robert E. Kass, Ph.D.
Maurice Falk Professor of Statistics and
Computational Neuroscience
Department of Statistics, Machine Learning, and
the Center for Neural Basis of Cognition
Carnegie Mellon University

Cato T. Laurencin, M.D., Ph.D. (Co-chair)
University Professor
Director, Institute for Regenerative Engineering & the
Raymond and Beverly Sackler Center for Biomedical,
Biological, Physical and Engineering Science
University of Connecticut Health Center

Alan S. Perelson, Ph.D.
Senior Fellow
Los Alamos National Laboratory

Matthew R. Redinbo, Ph.D.
Chair, Department of Chemistry
Departments of Chemistry, Biochemistry,
Microbiology and Genomics
University of North Carolina-Chapel Hill

Bernardo L. Sabatini, M.D., Ph.D.
Assistant Professor
Harvard Medical School
Dept. of Neurobiology

Brent R. Stockwell, Ph.D.
Associate Professor Biological Sciences
and Chemistry
Early Career Scientist of the Howard Hughes
Medical Institute
Columbia University

Shankar Subramaniam, Ph.D. (Co-chair)
Joan and Irwin Jacobs Endowed Chair in
Bioengineering and Systems Biology
University of California-San Diego

Julie A. Theriot, Ph.D.
Associate Professor
Department of Biochemistry
Department of Microbiology and Immunology
Stanford University School of Medicine

Michelle D. Wang, Ph.D.
Investigator, Howard Hughes Medical Institute
Professor of Physics
Cornell University

POPULATION AND LABORATORY BASED SCIENCES

Institutional Program Unifying Population and Laboratory Based Sciences

Mark Boguski, M.D., Ph.D.
Professor
Beth Israel Deaconess Medical Center
Harvard Medical School

Pamela B. Davis, M.D., Ph.D.
Dean
Case Western Reserve University School of Medicine

Timothy Hughes, Ph.D.
Professor
University of Toronto

Mark Lathrop, Ph.D.
Scientific Director
McGill University and Genome Quebec Innovation Centre

H. Steven Wiley, Ph.D.
Director, Biomolecular Systems
Pacific Northwest National Laboratories

Lynn Zechiedrich, Ph.D.
Associate Professor
Baylor College of Medicine

REGULATORY SCIENCE

Innovation in Regulatory Science Awards

Darrell Abernethy, M.D., Ph.D.
Professor of Medicine and Pharmacology and Molecular Science, Johns Hopkins University School of Medicine
Associate Director for Drug Safety, Official of Clinical Pharmacology Food and Drug Administration

Sandy Allerheiligen, Ph.D.
Vice President and Global Head
Modeling and Simulation
Merck Research Labs

David Acheson, M.D.
President and CEO
The Acheson Group, LLC

Garret FitzGerald, M.D.
Chair, Dept. of Pharmacology
Director, Institute for Translational Medicine and Therapeutics (ITMAT)
University of Pennsylvania Perelman School of Medicine

Dan Roden, M.D.
Professor of Medicine and Pharmacology
Assistant Vice Chancellor for Personalized Medicine
Vanderbilt University Medical Center

Christy L. Shaffer, Ph.D.
General Partner, Hatteras Venture Partners
Managing Director, Hatteras Discovery

Paul Watkins, M.D.
Verne S. Caviness Distinguished Professor of Medicine
University of North Carolina-Chapel Hill
Director, Hamner-UNC Institute for Drug Safety Sciences

Alastair J.J. Wood, M.D. (Chair)
Professor of Medicine and Pharmacology
Weill Medical College of Cornell University
Partner, Symphony Capital, LLC

REPRODUCTIVE SCIENCES

Preterm Birth Initiative

Susan Fisher, Ph.D.
Professor
Director, Translational Research in Perinatal Biology and Medicine
University of California-San Francisco

Jay D. Iams, M.D.
Frederick P. Zuspan Professor and Endowed Chair, Division of Maternal Fetal Medicine
Vice Chair, Department of Obstetrics and Gynecology
Ohio State University Medical Center

Louis J. Muglia, M.D., Ph.D. (Chair)
Co-Director, Perinatal Institute
Director, Center for the Prevention of Preterm Birth
University of Cincinnati Children's Hospital Medical Center
Director, Center for Preterm Birth Research
Professor, UC Dept. of Pediatrics

D. Michael Nelson, M.D., Ph.D.
Virginia S. Lang Professor and Vice Chair
Dept. of Obstetrics and Gynecology
Washington University School of Medicine

Jerome F. Strauss, III, M.D., Ph.D.
Dean, School of Medicine
Executive Vice President for Medical Affairs
Virginia Commonwealth University

Jenny Ting, Ph.D.
Alumni Distinguished Professor of Microbiology and Immunology
Lineberger Comprehensive Cancer Center
University of North Carolina at Chapel Hill

Jeffrey A. Whitsett, M.D.
Co-Director, Perinatal Institute
Chief, Section of Neonatology, Perinatal and Pulmonary Biology
University of Cincinnati Children's Hospital

SCIENCE EDUCATION

Student Science Enrichment Program

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Attorney
Member, North Carolina House of Representatives

Douglas Harris, Ph.D.
Executive Director
The Vermont Institutes

Sylvia M. James, Ed.D.
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Division of Human Resources Development
National Science Foundation

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Division of Indian Education
Public Schools of Robeson County

Steve Saucier
Executive Director
Grassroots Science Museum Collaborative

Brenda Wojnowski, Ed.D.
President
Wojnowski and Associates

Marco Zarate
President and Co-founder
North Carolina Society of Hispanic Professionals

Career Awards for Science and Mathematics Teachers

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North Carolina General Assembly
House of Representatives

Enriqueta C. Bond, Ph.D.
Past President
Burroughs Wellcome Fund

David Marsland
Science Content Specialist
Discovery Education

Angela Quick, Ed. S.
RTI International

Pat Shane, Ph.D. (Chair)
Executive Director
North Carolina Science Leadership Association

Yvette Stewart, Ed.D., Ed.S.
Assistant Director, Educator Effectiveness
North Carolina Department of Public Instruction

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Facilities and Administration

Betsy Stewart
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Victoria McGovern, Ph.D.
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Senior Program Associate and
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The most up-to-date information about our programs, including complete application information, can be found on our website at **www.bwfund.org**.

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